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NEW ZEALAND

OFFICIAL YEAR-BOOK

1895

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BY

E. J. VON DADELSZEN
REGISTRAR-GENERAL

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PREFACE.

THE statistical report belonging to this Year-book will be found more complete and elaborate than the previous one, covering, as it does, 178 pages.

In fact, the official and statistical portion of the work is now sufficiently large to form a volume by itself, and it is question for consideration whether the special articles composing the descriptive and more popular part of the book should not be bound up separately. The plan of placing the special articles in the same volume as the remarks on statistics may indeed help to bring the figures under notice, but is apt to give rise to the idea that the statistics are not fully dealt with, or, at any rate, subordinated to the other matter.

Referring to Part III., seventeen of the special articles given in the volume for 1894 have been omitted on this occasion, and a number of new ones inserted, including an account of the Cook Islands.

Difficulty has been again experienced in preparing and printing the Year-book during the session of Parliament, while new laws are being passed and departmental reports coming out.

The demand for the work has, so far, steadily increased.

E. J. VON DADELSZEN.

Registrar-General's Office,
Wellington, 7th October, 1895.

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THE NEW ZEALAND

OFFICIAL YEAR-BOOK.

1895.

SINCE the First Part of the Year-book was printed the following changes have taken place:—

SUPREME COURT JUDGES (See p. 19).

C. W. Richmond, died 3rd August, 1895.

FOREIGN CONSULS (See p. 24).

H. G. Simms appointed Acting-Consul for the German Empire at Christchurch.

LEGISLATIVE COUNCIL (See p. 29).

Hon. W. B. D. Mantell, died 7th September, 1895.

HOUSE OF REPRESENTATIVES (See p. 31).

Right Hon. Sir George Grey, K.C.M.G., P.C., resigned.
Mr. Thomas Thompson, elected for City of Auckland, 27th July, 1895.

CUSTOMS DUTIES (See p. 129).

The Tariff in force in 1894 has now been altered by "The Customs and Excise Duties Act, 1895."

THE
NEW ZEALAND OFFICIAL YEAR-BOOK,
1895.

PART I.—INTRODUCTORY; OFFICIAL.

NEW ZEALAND.

The Colony of New Zealand consists of three main islands, with several groups of smaller islands lying at some distance from the principal group. The main islands, known as the North, the Middle, and Stewart Islands, have a coast-line 4,330 miles in length—North Island, 2,200 miles; Middle Island, 2,000 miles; and Stewart Island, 130 miles. The other islands now included within the colony are the Chatham, Auckland, Campbell, Antipodes, Bounty, and Kermadec Islands. A protectorate over the Cook Islands (Hervey Group) is exercised by the Imperial Government, the Governor of New Zealand acting as responsible adviser.

New Zealand is mountainous in many parts, but has, nevertheless, large plains in both North and Middle Islands. In the North Island, which is highly volcanic, is situated the famous Thermal-Springs District, of which a special account will be given. The Middle Island is remarkable for its lofty mountains, with their magnificent glaciers, and for the deep sounds or fiords on the western coast.

New Zealand is firstly a pastoral, and secondly an agricultural country. Sown grasses are grown almost everywhere, the extent of land laid down being upwards of eight millions of acres. The soil is admirably adapted for receiving these grasses, and, after the bush has been burnt off, is mostly sown over without previous ploughing. In the Middle Island a large area is covered with native grasses, all used for grazing purposes. The large extent of good grazing-land has made the colony a great wool- and meat-producing country; and its agricultural capabilities are, speaking generally, very considerable. The abundance of water and the quantity of valuable timber are other natural advantages.

New Zealand is, besides, a mining country. Large deposits of coal are met with, chiefly on the west coast of the Middle Island. Gold, alluvial and in quartz, is found in both islands, the yield having been over forty-nine millions sterling in value to the present time. Full statistical information on this subject is given further on, compiled up to the latest dates.

DISCOVERY AND EARLY SETTLEMENT.

The first authentic account of the discovery of New Zealand is that given by Abel Jansen Tasman, the Dutch navigator. He left Batavia on the 14th August, 1642, in the yacht "Heemskirk," accompanied by the "Zeehaen" (or "Sea-hen") fly-boat. After having visited Mauritius and discovered Tasmania, named by him "Van Diemen's Land," in honour of Anthony van Diemen, Governor of the Dutch possessions in the East Indies, he steered eastward, and on the 13th December of the same year sighted the west coast of the Middle Island of New Zealand, described by him as "a high mountainous country, which is at present marked in the charts as New Zealand."

Tasman, under the belief that the land he saw belonged to a great polar continent, and was part of the country discovered some years before by Schouten and Le Maire, to which the name of Staaten Land had been given, gave the same name of Staaten Land to New Zealand; but within about three months afterwards Schouten's "Staaten Land" was found to be merely an inconsiderable island. Upon this discovery being announced, the country that Tasman had called Staaten Land received again the name of "New Zealand," by which it has ever since been known. Tasman sailed along the coast to a bay, where he anchored. To this he gave the name of Murderers (now Massacre) Bay, on account of an unprovoked attack on a boat's crew by the natives, and the massacre of four white men. Thence he steered along the west coast of the North Island, and gave the name of Cape Maria van Diemen to the north-western extremity thereof. After sighting the islands of the Three Kings he finally departed, not having set foot in the country.

There is no record of any visit to New Zealand after Tasman's departure until the time of Captain Cook, who, after leaving the Society Islands, sailed in search of a southern continent then believed to exist. He sighted land on the 6th October, 1769, at Young Nick's Head, and on the 8th of that month cast anchor in Poverty Bay. After having coasted round the North Island and the Middle and Stewart Islands—which last he mistook for part of the Middle Island—he took his departure from Cape Farewell on the 31st March, 1770, for Australia. He visited New Zealand again in 1773, in 1774, and in 1777.

M. de Surville, a French officer in command of the vessel "Saint Jean Baptiste," while on a voyage of discovery, sighted the north-east coast of New Zealand on the 12th December, 1769, and remained for a short time. A visit was soon after paid by another French officer, M. Marion du Fresne, who arrived on the west coast of the North Island of New Zealand on the 24th March, 1772, but was, on the 12th June following, treacherously murdered at the Bay of Islands by the Natives.

In 1793 the "Dædalus," under the command of Lieutenant Hanson, was sent by the Government of New South Wales to New Zealand, and two chiefs were taken thence to Norfolk Island. There was after this an occasional intercourse between the islands of New Zealand and the English settlements in New South Wales.

In 1814 the first missionaries arrived in New Zealand—Messrs. Hall and Kendall—who had been sent as forerunners by Mr. Marsden, chaplain to the New South Wales Government. After a short stay they returned to New South Wales, and on the 19th November of that year again embarked in company with Mr. Marsden, who preached his first sermon in New Zealand on Christmas Day, 1814. He returned to Sydney on the 23rd March, 1815, leaving Messrs. Hall and Kendall, who formed the first mission station at Rangihoua, Bay of Islands, under the auspices of the Church Missionary Society. Six years later, in 1821, the work of evangelization was put on a more durable basis; but the first station of the Wesleyan mission, established by Mr. Leigh and his wife, at the valley of the Kaeo, Whangaroa, was not taken possession of until the 10th June, 1823.

Colonisation.

The first attempt at colonisation was made in 1825 by a company formed in London. An expedition was sent out under the command of Captain Herd, who bought two islands in the Hauraki Gulf and a strip of land at Hokianga. The attempt, however, was a failure, owing to the savage character of the inhabitants. In consequence of frequent visits of whaling-vessels to the Bay of Islands, a settlement grew up at Kororareka—now called Russell—and in 1833 Mr. Busby was appointed British Resident there. A number of Europeans—generally men of low character—gradually settled in different parts of the country, and married Native women.

In 1838 a colonisation company, known as the New Zealand Company, was formed to establish settlement on systematic principles. A preliminary expedition, under the command of Colonel William Wakefield, was despatched from England on the 12th May, 1839, and arrived in New Zealand in the following August. Having purchased land from the Natives, Colonel Wakefield selected the shore of Port Nicholson, in Cook Strait, as the site of the first settlement. On the 22nd January, 1840, the first body of immigrants arrived, and founded the town of Wellington. About the same time —namely, on the 29th January, 1840—Captain Hobson, R.N., arrived at the Bay of Islands, empowered, with the consent of the Natives, to proclaim the sovereignty of the Queen over the islands of New Zealand, and to assume the government thereof. A compact called "The Treaty of Waitangi," to which in less than six months five hundred and twelve names were affixed, was entered into, whereby all rights and powers of sovereignty were ceded to the Queen, all territorial rights being secured to the chiefs and their tribes. New Zealand was then constituted a dependency of the Colony of New South Wales, but on the 3rd May, 1841, was proclaimed a separate colony. The seat of Government had been previously established at Waitemata (Auckland), round which a settlement was formed.

The New Zealand Company having decided to form another settlement, to which the name of "Nelson" was to be given, despatched a preliminary expedition from England in April, 1841, for the purpose of selecting a site. The spot chosen was the head of Blind Bay, where a settlement was established. About the same time a number of pioneers arrived in Taranaki, despatched thither by the New Plymouth Company, a colonising society which had been formed in England, and had bought 50,000 acres of land from the New Zealand Company.

The next important event in the progress of colonisation was the arrival at Port Chalmers, in March, 1848, of two emigrant ships sent out by the Otago Association for the foundation of a settlement by persons belonging to or in sympathy with the Free Church of Scotland.

In 1849 the "Canterbury Association for founding a Settlement in New Zealand" was incorporated. On the 16th December, 1850, the first emigrant ship despatched by the association arrived at Port Cooper, and the work of opening up the adjoining country was set about in a systematic fashion, the intention of the promoters being to establish a settlement complete in itself, and composed entirely of members of the then United Church of England and Ireland.

THE MAORIS.

Prior to the colonisation of New Zealand by Europeans, the earliest navigators and explorers found a race of people already inhabiting both islands. Papers written in 1874 by Mr. (afterwards Sir) William Fox, and Sir Donald McLean, then Native Minister, state that at what time the discovery of these islands was made by the Maoris, or from what place they came, are matters of tradition only, and that much has been lost in the obscurity enveloping the history of a people without letters. Nor is there anything on record respecting the origin of the Maori people themselves, beyond the general tradition of the Polynesian race, which seems to show a series of successive migrations from west to east, probably by way of Malaysia to the Pacific. Little more can now be gathered from their traditions than that they were immigrants, and that they probably found inhabitants on the east coast of the

North Island belonging to the same race as themselves—the descendants of a prior migration, whose history is lost. The tradition runs that, generations ago, the Maoris dwelt in a country named Hawaiki, and that one of their chiefs, after a long voyage, fetched the northern island of New Zealand. Returning to his home with a flattering description of the country he had discovered, this chief, it is said, persuaded a number of his kinsfolk and friends, who were much harassed by war, to set out with a fleet of double canoes for the new land. The names of most of the canoes are still remembered, and each tribe agrees in its account of the doings of the people of the principal canoes after their arrival in New Zealand; and from these traditional accounts the descent of the numerous tribes has been traced. Calculations, based on the genealogical staves kept by the *tohungas*, or priests, and on the well-authenticated traditions of the people, indicate that about twenty-one generations have passed since the migration, which may therefore be assumed to have taken place about five hundred and twenty-five years ago. The position of the legendary Hawaiki is unknown, but many places in the South Seas have been thus named in memory of the motherland. The Maoris speak a very pure dialect of the Polynesian language, the common tongue, with more or less variation, in all the Eastern Pacific Islands. When Captain Cook first visited New Zealand he availed himself of the services of a native from Tahiti, whose speech was easily understood by the Maoris. In this way much information respecting the early history of the country and its inhabitants was obtained which could not have otherwise been had.

BOUNDARIES AND AREA.

The Proclamation of Captain Hobson on the 30th January, 1840, gave as the boundaries of the colony the following degrees of latitude and longitude: On the north, 34° 30′ S. lat.; on the south, 47° 10′ S. lat.; on the east, 179° 0′ E. long.; on the west, 166° 5′ E. long. These limits excluded small portions of the extreme north of the North Island and of the extreme south of Stewart Island.

In April, 1842, by Royal Letters Patent, and again by the Imperial Act 26 and 27 Vict., c. 23 (1863), the boundaries of the colony were altered so as to extend from 33° to 53° of south latitude and from 162° of east longitude to 173° of west longitude. By Proclamation bearing date the 21st July, 1887, the Kermadec Islands, lying between the 29th and 32nd degrees of south latitude and the 177th and 180th degrees of west longitude, were declared to be annexed to and to become part of the Colony of New Zealand.

The following now constitute the Colony of New Zealand:—

1. The island commonly known as the North Island, with its adjacent islets, having an aggregate area of 44,468 square miles, or 28,459,580 acres.

2. The island known as the Middle Island, with adjacent islets, having an aggregate area of 58,525 square miles, or 37,456,080 acres.

3. The South or Stewart Island, and adjacent islets, having an area of 665 square miles, or 425,390 acres.

4. The Chatham Islands, situate 536 miles eastward of Lyttelton in the Middle Island, with an area of 375 square miles, or 239,920 acres.

5. The Auckland Islands, about 200 miles south of Stewart Island, extending about 30 miles from north to south, and nearly 15 from east to west, the area being 210,650 acres.

6. The Campbell Islands, in latitude 52° 33′ south, and longitude 169° 8′ west, about 30 miles in circumference, with an area of 45,440 acres.

7. The Antipodes Islands, about 458 miles in a south-easterly direction from Port Chalmers, in the Middle Island. These are detached rocky islands, and extend over a distance of between 4 and 5 miles from north to south. Area, 12,960 acres.

8. The Bounty Islands, a small group of islets, thirteen in number, lying north of the Antipodes Islands, and about 415 miles in an east-south-easterly direction from Port Chalmers. Area, 3,300 acres.

9. The Kermadec Islands, a group lying about 614 miles to the north-east of Russell, in the Bay of Islands. Raoul or Sunday Island, the largest of these, is about 20 miles in circuit. The next in size is Macaulay Island, about 3 miles round. Area of the group, 8,208 acres.

The total area of the colony is thus about 104,471 square miles, of which the aggregate area of the outlying groups of islands that are practically useless for settlement amounts to about 438 square miles.

A protectorate is exercised by the Imperial Government over the Cook Islands (or Hervey Group) by Proclamation dated the 27th October, 1888. The British Resident* is appointed on the recommendation of the New Zealand Government. He acts as Government Agent for the colony in all matters of trade.

Area of the Australian Colonies.

The areas of the several Australian Colonies, as given by different authorities, vary considerably. The total area of the Australian Continent is given as 2,944,628 square miles, according to a computation made by the late Surveyor-General of Victoria, Mr. J. A. Skene, from a map of Continental Australia compiled and engraved under his direction; but the following areas are taken from the official records of each colony:—

---

* Frederick J. Moss, Esq., late M.H.R., is now British Resident. His salary is paid by this colony.

	Square Miles.
Queensland	668,497
New South Wales	310,700
Victoria	87,884
South Australia	903,425
Western Australia	1,060,000
Total Continent of Australia	3,030,506
Tasmania	26,215
New Zealand (including the Chatham and other islands)	104,471
Total Australasia	3,161,192

The size of these colonies may be better realised by comparison of their areas with those of European countries. The areas of the following countries — Austria - Hungary, Germany, France, Belgium, Holland, Denmark, Sweden and Norway, Portugal, Spain, Italy (including Sardinia and Sicily), Switzerland, Greece, Roumania, Bulgaria, Servia, Eastern Roumelia, and Turkey in Europe—containing on the whole rather less than 1,600,000 square miles, amount to little more than half the extent of the Australian Continent. If the area of Russia in Europe be added to those of the other countries the total would be about one-seventh larger than the Australian Continent, and about one-twelfth larger than the Australasian Colonies, including New Zealand.

Area of the Colony of New Zealand.

The area of the Colony of New Zealand is about one-seventh less than the area of Great Britain and Ireland, the Middle Island of New Zealand being a little larger than the combined areas of England and Wales.

United Kingdom.	Area in Square Miles.
England and Wales	58,311
Scotland	30,463
Ireland	32,531
Total	121,305

New Zealand.	Area in Square Miles.
North Island	44,468
Middle Island	58,525
Stewart Island	665
Chatham Islands	375
Other islands	438
Total	104,471

PHYSICAL FEATURES OF THE NORTH ISLAND.

The North Island extends over a little more than seven degrees of latitude—a distance in a direct line from north to south of 430 geographical or 498 statute miles; but, as the northern portion of the colony, which covers more than three degrees of latitude, trends to the westward, the distance in a straight line from the North Cape to Cape Palliser, the extreme northerly and southerly points of the island, is about 515 statute miles.

This island is, as a whole, hilly, and, in parts, mountainous in character, but there are large areas of plain or comparatively level country that are, or by clearing may be made, available for agricultural purposes. Of these, the principal are the plains in Hawke's Bay on the East Coast, the Wairarapa Plain in the Wellington District, and a strip of country along the West Coast, about 250 miles in length, extending from a point about thirty miles from the City of Wellington to a little north of New Plymouth. The largest plain in the North Island, Kaingaroa, extends from the shore of Lake Taupo in a north-north-easterly direction to the sea-coast in the Bay of Plenty; but a great part of it is covered with pumice-sand, and is unfitted for tillage or pasture. There are several smaller plains and numerous valleys suitable for agriculture. The level or undulating country in this island fit, or capable of being made fit, for agriculture has been roughly estimated at 13,000,000 acres. This includes lands now covered with standing forest, and swamps that can be drained; also large areas of clay-marl and pumice-covered land. The clay-marl in its natural state is cold and uninviting to the farmer, but under proper drainage and cultivation it can be brought to a high state of productiveness. This kind of land is generally neglected at the present time, as settlers prefer soils more rapidly remunerative and less costly to work. The larger portion of the North Island was originally covered with forest. Although the area of bush-land is still very great, yet year by year the amount is being reduced, chiefly to meet the requirements of settlement, the trees being cut down and burnt, and grass-seed sown on the ashes to create pasture. Hilly as the country is, yet from the nature of the climate it is especially suited for the growth of English grasses, which will flourish wherever there is any soil, however steep the land may be; once laid down in grass very little of the land is too poor to supply food for cattle and sheep. The area of land in the North Island deemed purely pastoral or capable of being made so, while too steep for agricultural purposes, is estimated at 14,200,000 acres. In the centre of the island is a lake, about twenty miles across either way, called Taupo. A large area adjacent to the lake is at present worthless pumice-country. The Waikato River, the largest in the North Island, flows out of its north-eastern corner, and runs thence north-westward until it flows into the ocean a little distance south of the Manukau Harbour. This river is navigable for small steamers for about a hundred miles from its mouth. The Maori King-country, occupied by Natives who for several years isolated themselves from Europeans, lies between Lake Taupo and the western coast. The River Thames, or Waihou, having its sources north of Lake Taupo, flows northward into the Firth of Thames. It is navigable for about fifty miles, but only for small steamers. The other navigable rivers in this island are the Wanganui and Manawatu, which flow towards the south-west into Cook Strait.

The mountains in the North Island are estimated to occupy about one-tenth of the surface, and do not exceed 4,000ft. in height, with the exception of a few volcanic mountains that are more lofty. Of these, the three following are the most important:—

1. The Tongariro Mountain, situated to the southward of Lake Taupo. It consists of a group of distinct volcanic cones, the lava-streams from which have so overlapped in their descent as to form one compact mountain-mass at the base. The highest of these cones is called Ngauruhoe, and attains an elevation of 7,515ft. The craters of Ngauruhoe, the Red Crater (6,140ft.), and Te Mari (4,990ft.) are the three vents from which the latest discharges of lava have taken place, the most recent having occurred in 1868. These craters are still active, steam and vapour issuing from them with considerable force and noise, the vapours, charged with pungent gases and acids, making it dangerous to approach too near the crater-lips.

2. Ruapehu. This mountain lies to the south of Ngauruhoe and Tongariro. It is a volcanic cone in the solfatara stage, and reaches the height of 9,008ft., being in part considerably above the line of perpetual snow. The most remarkable feature of this mountain is the crater-lake on its summit, which is subject to slight and intermittent eruptions, giving rise to vast quantities of steam. Recently —in March, 1895—such an eruption took place, forming a few hot springs on the margin of the lake, and increasing the heat in the lake itself. This lake lies at the bottom of a funnel-shaped crater, the steep sides of which are mantled with ice and snow. The water occupies a circular basin about 500ft. in diameter, some 300ft. below the enclosing peaks, and is quite inaccessible except by ropes. This lake, and the three craters previously mentioned on Tongariro, are all in one straight line, which, if produced, would pass through the boiling springs at Tokaanu on the southern margin of Lake Taupo, the volcanic country north-east of that lake, and White Island, an active volcano in the Bay of Plenty, situated about twenty-seven miles from the mainland.

3. Mount Egmont. This is an extinct volcanic cone, rising to a height of 8,260ft. The upper part is always covered with snow. This mountain is situated close to New Plymouth, and is surrounded by one of the most fertile districts in New Zealand. Rising from the plains in solitary grandeur, it is an object of extreme beauty, the cone being one of the most perfect in the world.

It is estimated that the area of mountain-tops and barren country at too high an altitude for sheep, and therefore worthless for pastoral purposes, amounts, in the North Island, to 300,000 acres.

Without a doubt the hot springs form the most remarkable feature of the North Island. They are found over a large area, extending from Tongariro, south of Lake Taupo, to Ohaeawai, in the extreme north—a distance of some 300 miles; but the principal seat of hydrothermal action appears to be in the neighbourhood of Lake Rotorua, about forty miles north-north-east from Lake Taupo. By the destruction of the famed Pink and White Terraces and of Lake Rotomahana during the eruption of Mount Tarawera on the 10th June, 1886, the neighbourhood has been deprived of attractions unique in character and of unrivalled beauty; but the natural features of the country—the numerous lakes, geysers, and hot springs, some of which possess remarkable curative properties in certain complaints—are still very attractive to tourists and invalids. The world-wide importance of conserving this region as a sanatorium for all time has been recognised by the Government, and it is now dedicated by Act of Parliament to that purpose.

Notwithstanding the length of coast-line, good harbours in the North Island are not numerous. Those on the west coast north of New Plymouth are bar-harbours, unsuitable for large vessels. The principal harbours are the Waitemata Harbour, on which Auckland is situated—this is rather a deep estuary than a harbour; several excellent havens in the northern peninsula; and Port Nicholson, on the borders of which Wellington is situated. This is a land-locked harbour, about six miles across, having a comparatively narrow but deep entrance from the ocean. The water is deep nearly throughout.

Cook Strait.

Cook Strait separates the North and Middle Islands. It is some sixteen miles across at its narrowest part, but in the widest about ninety. The strait is invaluable for the purpose of traffic between different parts of the colony.

Physical Features of the Middle Island.

The extreme length of the Middle Island, from Jackson's Head, in Cook Strait, to Puysegur Point, at the extreme south-west, is about 525 statute miles; the greatest distance across at any point is in Otago (the southernmost) District, about 180 miles.

The Middle Island is intersected along almost its entire length by a range of mountains known as the Southern Alps. Some of the summits reach a height of from 10,000ft. to 12,000ft., Mount Cook, the highest peak, rising to 12,349ft.

In the south, in the neighbourhood of the sounds and Lake Te Anau, there are many magnificent peaks, which, though not of great height, are, owing to their latitude, nearly all crowned with perpetual ice and snow. Further north the mountains increase in height—Mount Earnslaw, at Lake Wakatipu; and Mount Aspiring, which has been aptly termed the New Zealand Matterhorn, nearly 10,000ft. in height, at Lake Wanaka. Northward of this again are Mount Cook (or Aorangi), Mount Sefton, and other magnificent peaks.

For beauty and grandeur of scenery the Southern Alps of New Zealand may worthily compare with, while in point of variety they are said actually to surpass, the Alps of Switzerland. In New Zealand few of the mountains have been scaled; many of the peaks and most of the glaciers are as yet unnamed; and there is still, in parts of the Middle Island, a fine field for exploration and discovery—geographical, geological, and botanical. The wonders of the Southern Alps are only beginning to be known; but the more they are known the more they are appreciated. The snow-line in New Zealand being so much lower than in Switzerland, the scenery, though the mountains are not quite so high, is of surpassing grandeur.

There are extensive glaciers on both sides of the range, those on the west being of exceptional beauty, as, from the greater abruptness of the mountain-slopes on that side, they descend to within about 700ft. of the sea-level, and into the midst of the evergreen forest. The largest glaciers on either side of the range are easily accessible.

The following gives the sizes of some of the glaciers on the eastern slope:—

Name.	Area of Glacier.	Length of Glacier.	Greatest Width.	Average Width.
	Acres.	Miles ch.	Miles ch.	Miles ch.
Tasman	13,664	18 0	2 14	1 15
Murchison	5,800	10 70	1 5	0 66
Godley	5,312	8 0	1 55	1 3
Mueller	3,200	8 0	0 61	0 50
Hooker	2,416	7 25	0 54	0 41

The Alletsch Glacier in Switzerland, according to Ball, in the "Alpine Guide," has an average width of one mile. It is in length and width inferior to the Tasman Glacier.

Numerous sounds or fiords penetrate the south-western coast. They are long, narrow, and deep (the depth of water at the upper part of Milford Sound is 1,270ft., although at the entrance only 130ft.), surrounded by giant mountains clothed with foliage to the snow-line, with waterfalls, glaciers, and snowfields at every turn. Some of the mountains rise almost precipitously from the water's edge to 5,000ft. and 6,000ft. above the sea. Near Milford, the finest of these sounds, is the great Sutherland Waterfall, 1,904ft. high.

The general surface of the northern portion of the Middle Island, comprising the Provincial Districts of Nelson and Marlborough, is mountainous, but the greater part is suitable for grazing purposes. There are some fine valleys and small plains suitable for agriculture, of which the Wairau Valley or Plain is the largest. Deep sounds, extending for many miles, break the coast-line abutting on Cook Strait. The City of Nelson is situated at the head of Blind Bay, which has a depth inwards from Cook Strait of about forty statute miles.

The Provincial District of Canterbury lies to the south of the

Marlborough District, and on the eastern side of the island. Towards the north the land is undulating; then there is a stretch of almost perfectly level country extending towards the south-west 160 miles, after which, on the south, the country is undulating as far as the borders of the Otago District. On the east a block of hill-country rises abruptly from the plain and extends for some miles seaward. This is Banks Peninsula, containing several good harbours, the principal being Port Cooper, on the north, on which is situated Lyttelton, the chief port of the district: the harbour of Akaroa, one of the finest in the colony, is on the southern coast of this peninsula.

The District of Otago is, on the whole, mountainous, but has many fine plains and valleys suitable for tillage. The mountains, except towards the west coast, are generally destitute of timber, and suitable for grazing sheep. There are goldfields of considerable extent in the interior of this district. The inland lakes are also very remarkable features. Lake Wakatipu extends over fifty-four miles in length, but its greatest width is not more than four miles, and its area only 114 square miles. It is 1,070ft. above sea-level, and has a depth varying from 1,170ft. to 1,296ft. Te Anau Lake is somewhat larger, having an area of 132 square miles. These lakes are bounded on the west by broken, mountainous, and wooded country, extending to the ocean.

The chief harbours in Otago are Port Chalmers, at the head of which Dunedin is situated, and the Bluff Harbour, at the extreme south.

The District of Westland, extending along the west coast of the Middle Island, abreast of Canterbury, is more or less auriferous throughout. The western slopes of the central range of mountains are clothed with forest-trees to the snow-line; but on the eastern side timber is scarce, natural grasses covering the ground.

The rivers in the Middle Island are for the most part mountain-torrents, fed by glaciers in the principal mountain-ranges. When the snow melts they rise in flood, forming, where not confined by rocky walls, beds of considerable width, generally covered by enormous deposits of shingle. The largest river in the colony as regards volume of water is the Clutha. It is 154 miles in length, but is only navigable for boats or small river-steamers for about thirty miles. The Rivers Buller, Grey, and Hokitika, on the West Coast, are navigable for a short distance from their mouths. They form the only ports in the Westland District. In their unimproved state they admitted, owing to the bars at their mouths, none but vessels of small draught; but, in consequence of the importance of the Grey and Buller Rivers as the sole ports available for the coal-export trade, large harbour-works have been undertaken, resulting in the deepening of the beds of these rivers, and giving a depth of from 18ft. to 24ft. of water on the bars.

The area of level or undulating land in the Middle Island available for agriculture is estimated at about 15,000,000 acres. About

13,000,000 are suitable for pastoral purposes only, or may become so when cleared of forest and sown with grass-seed. The area of barren land and mountain-tops is estimated at about 8,000,000 acres.

Foveaux Strait.

Foveaux Strait separates the Middle from Stewart Island. This last island has an area of only 425,390 acres. It is mountainous, and for the most part covered with forest.

The Outlying Islands.

The outlying group of the Chatham Islands, 480 statute miles east-south-east from Wellington, and 536 miles eastward of Lyttelton, consists of two principal islands and several unimportant islets. The largest island contains about 222,490 acres, of which an irregularly-shaped lake or lagoon absorbs 45,960 acres. About one-quarter of the surface of the land is covered with forest, the rest with fern or grass. The hills nowhere rise to a great height. Pitt Island is the next in size; the area is 15,330 acres. The greater portion of both islands is used for grazing sheep.

The Kermadec group of islands, four in number, are situated between 29° 10′ and 31° 30′ south latitude, and between 177° 45′ and 179° west longitude. They are named Raoul or Sunday Island, Macaulay Island, Curtis Island, and L'Espérance or French Rock. The principal island, Sunday, is 600 miles distant from Auckland. The islands are volcanic, and in two of them signs of activity are still to be seen. The rainfall is plentiful, but not excessive. The climate is mild and equable, and slightly warmer than the north of New Zealand. The following are the areas of the islands and islets of the group: Sunday Island, 7,200 acres; Herald group of islets, 85 acres; Macaulay Island, 764 acres; Curtis Islands, 128 acres and 19 acres; L'Espérance, 12 acres: total, 8,208 acres. Sunday Island is twenty miles in circumference, roughly triangular in shape, and at the highest point 1,723ft. above the sea-level. It is rugged and broken over a very large extent of its surface, and, except in a few places, covered with forest. The soil everywhere on the island is very rich, being formed by the decomposition of a dark-coloured pumiceous tuff and a black andesitic lava, with which is closely mixed a fine vegetable mould. The great luxuriance and richness of the vegetation bear witness to the excellence of the soil, which is everywhere—except where destroyed by eruptions, and on the steep cliffs—the same rich loam. Want of water is one of the drawbacks. Three of the four lakes on the island are fresh, but so difficult of approach as to be practically useless.

The Auckland Islands are about 290 miles south of Bluff Harbour, their position being given on the Admiralty chart as latitude 50° 31′ 29″ S., and longitude 166° 19′ 12″ E. They have several good harbours. Port Ross, at the north end of the principal island, was described by the eminent French commander, D'Urville, as one of the best harbours of refuge in the known world. At the southern end of the island there is a through passage extending from the east to the west coast. It has been variously named Adam's Strait and Carnley Harbour, and forms a splendid sheet of water. The largest of the islands is about 27 miles long by about 15 miles broad, and is very mountainous, the highest part being about 2,000ft. above the sea. The west coast is bold and precipitous, but the east coast has several inlets. The wood on the island is, owing to the strong prevailing wind, scrubby in character. The New Zealand Government maintains at this island a dépôt of provisions and clothing for the use of shipwrecked mariners.

CONSTITUTION.

British sovereignty was proclaimed over New Zealand in January, 1840, and the country became a dependency of New South Wales until the 3rd May, 1841, when it was made a separate colony. The seat of Government was at Auckland, and the Executive included the Governor, and three gentlemen holding office as Colonial Secretary, Attorney-General, and Colonial Treasurer.

The successors of these gentlemen, appointed in August, 1841, May, 1842, and January, 1844, respectively, continued in office until the establishment of Responsible Government on the 7th May, 1856. Only one of them—Mr. Swainson, the Attorney-General—sat as a member of the first General Assembly, opened on the 27th May, 1854. During the session of that year there were associated with the permanent members of the Executive Council certain members of the General Assembly. These latter held no portfolios.

The Government of the colony was at first vested in the Governor, who was responsible only to the Crown; but in 1852 an Act granting representative institutions to the colony was passed by the Imperial Legislature. Under it the constitution of a General Assembly for the whole colony was provided for, to consist of a Legislative Council, the members of which were to be nominated by the Governor, and of an elective House of Representatives. The first session of the General Assembly was opened on the 27th May, 1854, but the members of the Executive were not responsible to Parliament. The first Ministers under a system of Responsible Government were appointed on the 18th April, 1856. By the Act of 1852 the colony was divided into six provinces, each to be presided over by an elective Superintendent, and to have an elective Provincial Council, empowered to legislate, except on certain specified subjects. The franchise amounted practically to household suffrage. In each case the election was for four years; but a dissolution of the Provincial Council by the Governor could take place at any time, necessitating a fresh election both of the Council and of the Superintendent. The Superintendent was chosen by the whole body of electors of the province; each member of the Provincial Council by the electors of a district. The Provincial Governments, afterwards increased to nine, remained as integral parts of the Constitution of the colony until the 1st November, 1876, when they were abolished by an Act of the General Assembly, that body having been vested with the power of altering the Constitution Act. On the same day an Act of the General Assembly which subdivided the colony (exclusive of the areas included within municipalities) into counties, and established a system of local county government, came into force.

GOVERNMENT.

The Governor is appointed by the Queen. His salary is £5,000 a year, and is provided by the colony.

Members of the Legislative Council hold their seats under writs of summons from the Governor. Till the year 1891 the appointments were for life; but in September of that year an Act was passed making appointments after that time tenable for seven years only, though Councillors may be reappointed. In either case seats may be vacated by resignation or extended absence. Two members of the Council are aboriginal native chiefs.

The members of the House of Representatives are elected for three years from the time of each general election; but at any time a dissolution of Parliament by the Governor may render a general election necessary. Four of the members are representatives of Native constituencies. An Act was passed in 1887 which provided that, on the dissolution of the then General Assembly, the number of members to be thereafter elected to the House of Representatives should be seventy-four in all, of whom four were to be elected, under the provisions of the Maori Representation Acts, as representatives of Maori electors only. For the purposes of European representation the colony is divided into sixty-two electoral districts, four of which—the Cities of Auckland, Wellington, Christchurch, and Dunedin—return each three members, and all the other electorates one each. Members of the House of Representatives are chosen by the votes of the inhabitants in every electoral district appointed for that purpose.

In 1889 an amendment of the Representation Act was passed, which contained a provision prohibiting any elector from giving his vote in respect of more than one electorate at any election. "The Electoral Act, 1893," has extended to women of both races the right to register as electors, and to vote at the elections for members of the House of Representatives. The qualification for registration is the same for both sexes, and remains, under the Act of 1893, substantially unaltered. No person is entitled to be registered on more than one electoral roll within the colony, whatever the number or nature of the qualifications he or she may possess, or wherever they may be. Women are not qualified to be elected as members of the House of Representatives. The changes in the electoral laws, with remarks on the results of the election of November, 1893, are the subject of special comment further on in this work. Every man registered as an elector, and not coming within the meaning of section 8 of

"The Electoral Act, 1893," is qualified to be elected a member of the House of Representatives for any electoral district. For European representation every adult person, if resident one year in the colony and three months in one electoral district, can be registered as an elector. Freehold property of the value of £25 held for six months preceding the day of registration also entitles a man or woman to register, if not already registered under the residential qualification. Maoris possessing £25 freeholds under Crown title can also register; but, if registered on a European roll, cannot vote for representatives of their own race. For Maori representation every adult Maori resident in any Maori electoral district (of which there are four only in the colony) can vote. Registration is not required in Native districts. The proportion of representation to population at the last general election for the House of Representatives, in November, 1893, was one European member to every 9,604 inhabitants, and one Maori member to every 10,498 Natives.

THE SEAT OF GOVERNMENT.

Up to the year 1865 the seat of Government of New Zealand was at Auckland. Several attempts were made by members of Parliament, by motions in the Legislative Council and House of Representatives, to have it removed to some more central place; but it was not until November, 1863, that Mr. Domett (the then ex-Premier) was successful in carrying resolutions in the House of Representatives that steps should be taken for appointing some place in Cook Strait as the permanent seat of Government in the colony. The resolutions adopted were: "(1.) That it has become necessary that the seat of Government in the colony should be transferred to some suitable locality in Cook Strait. (2.) That, in order to promote the accomplishment of this object, it is desirable that the selection of the particular site in Cook Strait should be left to the arbitrament of an impartial tribunal. (3.) That, with this view, a Bill should be introduced to give effect to the above resolutions." On the 25th November an address was presented to the Governor, Sir George Grey, K.C.B., by the Commons of New Zealand, requesting that the Governors of the Colonies of New South Wales, Victoria, and Tasmania might each be asked to appoint one Commissioner for the purpose of determining the best site in Cook Strait. Accordingly, the Hon. Joseph Docker, M.L.C., New South Wales; the Hon. Sir Francis Murphy, Speaker of the Legislative Council, Victoria; and R. C. Gunn, Esq., Tasmania, were appointed Commissioners.

These gentlemen, having made a personal inspection of all suitable places, arrived at the unanimous decision "that Wellington, in Port Nicholson, was the site upon the shores of Cook Strait which presented the greatest advantages for the administration of the government of the colony."

The seat of Government was, therefore, in accordance with the recommendations of the Commissioners, removed to Wellington in February, 1865.

PUBLIC WORKS.

Nearly all the public works of New Zealand are in the hands of the Government of the colony, and in the early days they simply kept pace with the spread of settlement. In 1870, however, a great impetus was given to the progress of the whole country by the inauguration of the "Public Works and Immigration Policy," which provided for carrying out works in advance of settlement. Railways, roads, and water-races were constructed, and immigration was conducted on a large scale. As a consequence, the population increased from 267,000 in 1871 to 501,000 in 1881, and 686,128 at the close of the year 1894, exclusive of Maoris.

SUCCESSIVE GOVERNORS.

SUCCESSION OF GOVERNORS OF NEW ZEALAND, AND THE DATES ON WHICH THEY ASSUMED AND RETIRED FROM THE GOVERNMENT.

Captain William Hobson, R.N., from Jan., 1840, to 10 Sept., 1842.

[British sovereignty was proclaimed by Captain Hobson in January, 1840, and New Zealand became a dependency of the Colony of New South Wales until 3rd May, 1841, at which date it was proclaimed a separate colony. From January, 1840, to May, 1841, Captain Hobson was Lieutenant-Governor of New Zealand under Sir George Gipps, Governor of New South Wales, and from May, 1841, Governor of New Zealand; the seat of Government being at Auckland, where he died in September, 1842. From the time of Governor Hobson's death, in September, 1842, until the arrival of Governor Fitzroy, in December, 1843, the Government was carried on by the Colonial Secretary, Lieutenant Shortland.]

Lieutenant Shortland, Administrator, from 10 Sept., 1842, to 26 Dec., 1843.

Captain Robert Fitzroy, R.N., from 26 Dec., 1843, to 17 Nov., 1845.

Captain Grey (became Sir George Grey, K.C.B., in 1848), from 18 Nov., 1845, to 31 Dec., 1853.

[Captain Grey held the commission as Lieutenant-Governor of the colony until the 1st January, 1848, when he was sworn in as Governor-in-Chief over the Islands of New Zealand, and as Governor of the Province of New Ulster and Governor of the Province of New Munster. After the passing of the New Zealand Constitution Act, Sir George Grey was, on the 13th September, 1852, appointed Governor of the colony, the duties of which office he assumed on the 7th March, 1853. In August, 1847, Mr. E. J. Eyre was appointed Lieutenant-Governor of New Munster: he was sworn in, 28th January, 1848. On 3rd January, 1848, Major-General George Dean Pitt was appointed Lieutenant-

Governor of New Ulster: he was sworn in, 14th February, 1848; died, 8th January, 1851; and was succeeded as Lieutenant-Governor by Lieutenant-Colonel Wynyard, appointed 14th April, 1851; sworn in, 26th April, 1851. The duties of the Lieutenant-Governor ceased on the assumption by Sir George Grey of the office of Governor, on the 7th March, 1853.]

Lieutenant-Colonel Robert Henry Wynyard, C.B., Administrator, from 3 Jan., 1854, to 6 Sept., 1855.

Colonel Thomas Gore Browne, C.B., from 6 Sept., 1855, to 2 Oct., 1861.

Sir George Grey, K.C.B., Administrator, from 3 Oct., 1861; Governor, from 4 Dec., 1861, to 5 Feb., 1868.

Sir George Ferguson Bowen, G.C.M.G., from 5 Feb., 1868, to 19 Mar., 1873.

Sir George Alfred Arney, Chief Justice, Administrator, from 21 Mar. to 14 June, 1873.

Sir James Fergusson, Baronet, P.C., from 14 June, 1873, to 3 Dec., 1874.

The Marquis of Normanby, P.C., Administrator, from 3 Dec., 1874; Governor, from 9 Jan., 1875, to 21 Feb., 1879.

James Prendergast, Chief Justice, Administrator, from 21 Feb. to 27 Mar., 1879.

Sir Hercules George Robert Robinson, G.C.M.G., Administrator, 27 Mar., 1879; Governor, from 17 April, 1879, to 8 Sept., 1880.

James Prendergast, Chief Justice, Administrator, from 9 Sept. to 29 Nov., 1880.

Sir Arthur Hamilton Gordon, G.C.M.G., from 29 Nov., 1880, to 23 June, 1882.

Sir James Prendergast, Chief Justice, Administrator, from 24 June, 1882, to 20 Jan., 1883.

Lieutenant-General Sir William Francis Drummond Jervois, G.C.M.G., C.B., from 20 Jan., 1883, to 22 Mar., 1889.

Sir James Prendergast, Chief Justice, Administrator, from 23 Mar. to 2 May, 1889.

The Earl of Onslow, G.C.M.G., from 2 May, 1889, to 24 Feb., 1892.

Sir James Prendergast, Chief Justice, Administrator, from 25 Feb. to 6 June, 1892.

The Earl of Glasgow, G.C.M.G., from 7 June, 1892.

SUPREME COURT JUDGES.

Supreme Court Judges, past and present, with Dates of Appointment, and of Resignation or Death.

Sir W. Martin, appointed Chief Justice, 10 Jan., 1842. Resigned, 12 June, 1857.

H. S. Chapman, appointed, 26 Dec., 1843. Resigned, 30 July, 1850. Reappointed, 23 Mar., 1864. Resigned, 31 Mar., 1875.

S. Stephen, appointed, 30 July, 1850. Appointed Acting Chief Justice 20 Oct., 1855. Died, 13 Jan., 1858.

Daniel Wakefield, appointed, Oct., 1855. Died, Oct., 1857.

H. B. Gresson, appointed temporarily, 8 Dec., 1857. Permanently, 1 July, 1862. Resigned, 31 Mar., 1875.

Sir G. A. Arney, appointed Chief Justice, 1 Mar., 1858. Resigned, 31 Mar., 1875.

A. J. Johnston, appointed, 2 Nov., 1858. Died, 1 June, 1888.

C. W. Richmond, appointed, 20 Oct., 1862.

J. S. Moore, appointed temporarily, 15 May, 1866. Relieved, 30 June, 1868.

C. D. R. Ward, appointed temporarily, 1 Oct., 1868. Relieved, May, 1870. Appointed temporarily, 21 Sept., 1886. Relieved, 12 Feb., 1889.

Sir J. Prendergast, appointed Chief Justice, 1 April, 1875.

T. B. Gillies, appointed, 3 Mar., 1875. Died, 26 July, 1889.

J. S. Williams, appointed, 3 Mar., 1875.

J. E. Denniston, appointed, 11 Feb., 1889.

E. T. Conolly, appointed, 19 Aug., 1889.

EXECUTIVE COUNCIL, 1843–56.

Members of the Executive Council of the Colony of New Zealand previous to the Establishment of Responsible Government (not including the Officers Commanding the Forces).

Willoughby Shortland, Colonial Secretary, from 3 May, 1841, to 31 Dec., 1843; succeeded by Mr. Sinclair.

Francis Fisher, Attorney-General, from 3 May to 10 Aug., 1841; succeeded by Mr. Swainson.

George Cooper, Colonial Treasurer, from 3 May, 1841, to 9 May, 1842; succeeded by Mr. Shepherd.

William Swainson, Attorney-General, from 10 Aug., 1841, to 7 May, 1856.

Alexander Shepherd, Colonial Treasurer, from 9 May, 1842, to 7 May, 1856.

Andrew Sinclair, Colonial Secretary, from 6 Jan., 1844, to 7 May, 1856.

> [The three gentlemen last mentioned were nominated by Her Majesty as *ex officio* members of the Executive Council. Two of them, the Colonial Secretary and the Colonial Treasurer, were not members of the General Assembly, opened for the first time 27th May, 1854, but all three remained in office until the establishment of Responsible Government.]

James Edward FitzGerald, M.H.R., without portfolio, from 14 June to 2 Aug., 1854.

Henry Sewell, M.H.R., without portfolio, from 14 June to 2 Aug., 1854.

Frederick Aloysius Weld, M.H.R., without portfolio, from 14 June to 2 Aug., 1854.

Francis Dillon Bell, M.L.C., without portfolio, from 30 June to 11 July, 1854.

Thomas Houghton Bartley, M.L.C., without portfolio, from 14 July to 2 Aug., 1854.

Thomas Spencer Forsaith, M.H.R., without portfolio, from 31 Aug. to 2 Sept., 1854.

Edward Jerningham Wakefield, M.H.R., without portfolio, from 31 Aug. to 2 Sept., 1854.

William Thomas Locke Travers, M.H.R., without portfolio, 31 Aug. to 2 Sept., 1854.

James Macandrew, M.H.R., without portfolio, from 31 Aug. to 2 Sept., 1854.

PARLIAMENTS.

NUMBER OF PARLIAMENTS SINCE THE CONSTITUTION ACT PASSED FOR CONFERRING REPRESENTATIVE INSTITUTIONS UPON THE COLONY OF NEW ZEALAND, WITH THE DATES OF OPENING OF SESSIONS AND DATES OF CLOSING OR DISSOLUTION.

No. of Parliament.	Date of Opening of Sessions.	Date of Closing or Dissolution.
First Parliament	27 May, 1854 .. 31 August, 1854 .. 8 August, 1855 ..	9 August, 1854. 16 September, 1854. 15 September, 1855.
Second Parliament	15 April, 1856 .. (There was no session 10 April, 1858 .. (There was no session 30 July, 1860 ..	16 August, 1856. held in the year 1857.) 21 August, 1858. held in the year 1859.) 5 November, 1860.

PARLIAMENTS—*continued.*

No. of Parliament.	Date of Opening of Sessions.	Date of Closing or Dissolution.
Third Parliament	3 June, 1861	7 September, 1861.
	7 July, 1862	15 September, 1862.
	19 October, 1863	14 December, 1863.
	24 November, 1864	13 December, 1864.
	26 July, 1865	30 October, 1865.
Fourth Parliament	30 June, 1866	8 October, 1866.
	9 July, 1867	10 October, 1867.
	9 July, 1868	20 October, 1868.
	1 June, 1869	3 September, 1869.
	14 June, 1870	13 September, 1870.
Fifth Parliament	14 August, 1871	16 November, 1871.
	16 July, 1872	25 October, 1872.
	15 July, 1873	3 October, 1873.
	3 July, 1874	31 August, 1874.
	20 July, 1875	21 October, 1875.
Sixth Parliament	15 June, 1876	31 October, 1876.
	19 July, 1877	10 December, 1877.
	26 July, 1878	2 November, 1878.
	11 July, 1879	15 August, 1879.
Seventh Parliament	24 September, 1879	19 December, 1879.
	28 May, 1880	1 September, 1880.
	9 June, 1881	24 September, 1881.
Eighth Parliament	18 May, 1882	15 September, 1882.
	14 June, 1883	8 September, 1883.
	5 June, 1884	24 June, 1884.
Ninth Parliament	7 August, 1884	10 November, 1884.
	11 June, 1885	22 September, 1885.
	13 May, 1886	18 August, 1886.
	26 April, 1887	15 July, 1887.
Tenth Parliament	6 October, 1887	23 December, 1887.
	10 May, 1888	31 August, 1888.
	20 June, 1889	19 September, 1889.
	19 June, 1890	3 October, 1890.
Eleventh Parliament	23 January, 1891	31 January, 1891.
	11 June, 1891	5 September, 1891.
	23 June, 1892	12 October, 1892.
	22 June, 1893	8 November, 1893.
Twelfth Parliament	21 June, 1894.	24 October, 1894.
	20 June, 1895.	

SUCCESSIVE MINISTRIES

SINCE THE ESTABLISHMENT OF RESPONSIBLE GOVERNMENT IN NEW ZEALAND IN 1856.

Name of Ministry.	Assumed Office.	Retired.
1. Bell-Sewell	7 May, 1856	20 May, 1856.
2. Fox	20 May, 1856	2 June, 1856.
3. Stafford	2 June, 1856	12 July, 1861.
4. Fox	12 July, 1861	6 August, 1862.
5. Domett	6 August, 1862	30 October, 1863.
6. Whitaker-Fox	30 October, 1863	24 November, 1864.
7. Weld	24 November, 1864	16 October, 1865.
8. Stafford	16 October, 1865	28 June, 1869.
9. Fox	28 June, 1869	10 September, 1872.
10. Stafford	10 September, 1872	11 October, 1872.
11. Waterhouse	11 October, 1872	3 March, 1873.
12. Fox	3 March, 1873	8 April, 1873.
13. Vogel	8 April, 1873	6 July, 1875.
14. Pollen	6 July, 1875	15 February, 1876.
15. Vogel	15 February, 1876	1 September, 1876.
16. Atkinson	1 September, 1876	13 September, 1876.
17. Atkinson (reconstituted)	13 September, 1876	13 October, 1877.
18. Grey	15 October, 1877	8 October, 1879.
19. Hall	8 October, 1879	21 April, 1882.
20. Whitaker	21 April, 1882	25 September, 1883.
21. Atkinson	25 September, 1883	16 August, 1884.
22. Stout-Vogel	16 August, 1884	28 August, 1884.
23. Atkinson	28 August, 1884	3 September, 1884.
24. Stout-Vogel	3 September, 1884	8 October, 1887.
25. Atkinson	8 October, 1887	24 January, 1891.
26. Ballance	24 January, 1891	1 May, 1893.*
27. Seddon	1 May, 1893.	

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* Owing to the death of the Premier, the Hon. J. Ballance, on 27th April, 1893.

PREMIERS OF SUCCESSIVE MINISTRIES.

Name of Premier.

Henry Sewell.
William Fox.
Edward William Stafford.
William Fox.
Alfred Domett.
Frederick Whitaker.
Frederick Aloysius Weld.
Edward William Stafford.
William Fox.
Hon. Edward William Stafford.
George Marsden Waterhouse.
Hon. William Fox.
Hon. Julius Vogel, C.M.G.
Daniel Pollen, M.L.C.

Name of Premier.

Sir Julius Vogel, K.C.M.G.
Harry Albert Atkinson.
Harry Albert Atkinson (Ministry reconstituted).
Sir George Grey, K.C.B.
Hon. John Hall.
Frederick Whitaker, M.L.C.
Harry Albert Atkinson.
Robert Stout.
Harry Albert Atkinson.
Sir Robert Stout, K.C.M.G.
Sir Harry Albert Atkinson, K.C.M.G.
John Ballance.
Richard John Seddon.

SPEAKERS OF THE LEGISLATIVE COUNCIL,
WITH DATES OF THEIR APPOINTMENT AND DATES OF RETIREMENT OR DEATH.

Name of Speaker.	Date of Appointment.	Date of Retirement or Death.
Hon. William Swainson	16 May, 1854 ..	8 August, 1855.
Hon. Frederick Whitaker	8 August, 1855 ..	12 May, 1856.
Hon. Thomas Houghton Bartley ..	12 May, 1856 ..	1 July, 1868.
Hon. Sir John Larkins Cheese Richardson, Kt.	1 July, 1868 ..	14 June, 1879.
Hon. Sir William Fitzherbert, K.C.M.G.	14 June, 1879 ..	23 January, 1891.
Hon. Sir Harry Albert Atkinson, K.C.M.G.	23 January, 1891	28 June, 1892.
Hon. Henry John Miller	8 July, 1892.	

SPEAKERS OF THE HOUSE OF REPRESENTATIVES,
WITH DATES OF THEIR ELECTION AND DATES OF RETIREMENT.

Name of Speaker.	Date of Election.	Date of Retirement.
Sir Charles Clifford, Bart.	26 May, 1854	
	15 April, 1856 ..	3 June, 1861.
Sir David Monro, Kt. Bach. ..	3 June, 1861	
	30 June, 1866 ..	13 Sept., 1870.
Sir Francis Dillon Bell, K.C.M.G., C.B.	14 August, 1871 ..	21 October, 1875.
Sir William Fitzherbert, K.C.M.G. ..	15 June, 1876 ..	13 June, 1879.
Sir George Maurice O'Rorke, Kt. Bach.	11 July, 1879	
	24 September, 1879	
	18 May, 1882	
	7 August, 1884	
	6 October, 1887	3 October, 1890.
Hon. Major William Jukes Steward ..	23 January, 1891	8 November, 1893.
Hon. Sir George Maurice O'Rorke, Kt. Bach.	21 June, 1894.	

FOREIGN CONSULS.
CONSULS OF FOREIGN COUNTRIES RESIDING IN, OR WITH JURISDICTION OVER, NEW ZEALAND, JUNE, 1895.

Country represented.	Office held.	Name.	Place of Residence.
Austria-Hungary	Consul ..	Julius Mergell	Sydney.
Belgium ..	Consul-General	Gustave Beckx	Melbourne.
„ ..	Consul ..	Charles John Johnston ..	Wellington.
„ ..	„ ..	Alexander Beck	Christchurch.
„ ..	„ ..	Arthur Masy	Auckland.
Chili	Consul-General	William Henry Eldred ..	Sydney.
„	Consular Agent	Edmund Quick	Dunedin.

FOREIGN CONSULS—*continued.*

Country represented.	Office held.	Name.	Place of Residence.
Denmark	Consul (for North Island)	Edward Valdemar Johansen	Auckland.
„	Consul (for South Island)	Emil Christian Skog	Christchurch.
„	Vice-Consul	Francis Henry Dillon Bell	Wellington.
„	„	Edmund Quick	Dunedin.
France	Consul (for New Zealand)	Viscount Alexandre Louis Ferdinand De Jouffroy D'Abbans	Wellington.
„	Consular Agent	Thomas Russell	Auckland.
„	„	Percival Clay Neill	Dunedin.
„	„	Hon. Edmund William Parker	Christchurch.
German Empire	Consul-General	A. Pelldram (C. L. Sahl acting till end of 1895)	Sydney.
„	Consul	Bendix Hallenstein	Dunedin.
„	„	Heinrich von Haast	Christchurch.
„	„	Friedrich August Krull	Wanganui.
„	„	Carl Seegner	Auckland.
„	Vice-Consul	Augustus Friedrich Castendyk	Wellington.
Hawaiian Islands	Consul-General (for Australasia)	W. E. Dixon	Sydney.
„	Consul	(Vacant)	Auckland.
„	„	Reynolds Driver	Dunedin.
Italy	Consul-General (in Australia)	Cavaliere P. Corte	Melbourne.
„	Consular Agent	(Vacant)	Christchurch.
„	„	George Fisher	Wellington.
„	„	Edward Bowes Cargill	Dunedin.
„	„	Geraldo Guiseppe Perotti	Greymouth.
„	„	R. Rose (acting)	Auckland.
Netherlands	Consul-General	Dr. Laon Adrian de Vicq	Melbourne.
„	Consul	Charles John Johnston	Wellington.
„	Vice-Consul	Edward Bowes Cargill	Dunedin.
Nicaragua	Consul-General (for Australasia)	J. H. Amora	Sydney.
Portugal	Consul	John Duncan	Wellington.
„	Vice-Consul	Henry Rees George	Auckland.
„	„	Edmund Quick	Dunedin.
pain	„	Don Francisco Arenas Y. Bonet	Christchurch.
Sweden and Norway	Consul	Edward Pearce	Wellington.
„	Vice-Consul	Edward Valdemar Johansen	Auckland.
„	„	Frank Graham	Christchurch.
United States	Consul-General	Daniel W. Maratta	Melbourne.
„	Consul (for New Zealand)	John Darcy Connolly	Auckland.
„	Vice-Consul	Leonard A. Bachelder	Auckland.
„	Consular Agent	Albert Cuff	Christchurch.
„	„	Robert Wyles	Mongonui.
„	„	Thomas Cahill, M.D.	Wellington.
„	„	W. G. Neill	Dunedin.

AGENTS-GENERAL IN LONDON
(With their Addresses).

NEW ZEALAND.

Sir W. B. Perceval, K.C.M.G., Westminster Chambers, 13, Victoria Street, S.W. Secretary—Walter Kennaway, C.M.G.

AUSTRALIA.

Queensland.—The Hon. Sir James F. Garrick, K.C.M.G., Westminster Chambers, 1, Victoria Street, S.W. Secretary—Charles Shortt Dicken, C.M.G.

New South Wales.—The Hon. Sir Saul Samuel, K.C.M.G., C.B., Westminster Chambers, 9, Victoria Street, S.W. Secretary—S. Yardley, C.M.G.

Victoria.—The Hon. Duncan Gillies, 15, Victoria Street, S.W. Secretary— .

South Australia.—The Hon. Thomas Playford, Victoria Chambers, 15, Victoria Street, S.W. Secretary—T. F. Wickstead.

Western Australia.—The Hon. Sir Malcolm Fraser, K.C.M.G., 15, Victoria Street, Westminster, S.W. Secretary—Reginald Hare.

Tasmania.—The Hon. Sir Robert G. W. Herbert, G.C.B., Westminster Chambers, 5, Victoria Street, S.W. Secretary— .

THE COLONIAL OFFICE, JULY, 1895.

(DOWNING STREET, S.W., LONDON), WITH DATES OF APPOINTMENT.

Principal Secretary of State for the Colonies—The Right Hon. Joseph Chamberlain, P.C.

Under-Secretaries: Permanent—The Hon. Sir Robert Henry Meade, K.C.B., 1st February, 1892; Parliamentary—The Earl of Selborne.

Assistant Under-Secretaries—John Bramston, D.C.L., C.B., 30th June, 1876; Edward Wingfield, B.C.L., C.B., 19th July, 1878; Edward Fairfield, C.M.G., C.B., 1st February, 1892.

CROWN AGENTS FOR THE COLONIES.

DOWNING STREET, S.W. CITY OFFICE: 1, TOKENHOUSE BUILDINGS, E.C., LONDON.

Crown Agents—Sir Montagu Frederick Ommaney, K.C.M.G., and Ernest Edward Blake.

HONOURS HELD BY COLONISTS.

Bell, Hon. Sir Francis Dillon, Knt. Bach., 1873; K.C.M.G., 1881; C.B., 1886.
Buckley, Hon. Sir Patrick Alphonsus, K.C.M.G., 1892.
Buller, Sir Walter Lawry, F.R.S., C.M.G., 1875; K.C.M.G., 1886.
FitzGerald, James Edward, Esq., C.M.G., 1870.
Grace, Hon. Morgan Stanislaus, C.M.G., 1890.
Grey, Right Hon. Sir George, K.C.B., 1848; P.C., 1894.
Hall, Hon. Sir John, K.C.M.G., 1882.
Hector, Sir James, F.R.S., C.M.G., 1875; K.C.M.G., 1887.
Larnach, Hon. William James Mudie, C.M.G., 1879.
O'Rorke, Hon. Sir George Maurice, Knt. Bach., 1880.
Perceval, Sir Westby Brook, K.C.M.G, 1894.
Prendergast, Sir James, Knt. Bach., 1881.
Richardson, Hon. Edward, C.M.G., 1879.
Roberts, John, Esq., C.M.G., 1891.
Stafford, Hon. Sir Edward William, K.C.M.G., 1879; G.C.M.G., 1887.
Stout, Hon. Sir Robert, K.C.M.G., 1886.
Vogel, Hon. Sir Julius, C.M.G., 1872; K.C.M.G., 1875.
Whitmore, Hon. Colonel Sir George Stoddart, C.M.G., 1869; K.C.M.G., 1882.

PERSONS ALLOWED TO RETAIN THE TITLE OF "HONOURABLE" WITHIN HER MAJESTY'S DOMINIONS.

By despatch from the Secretary of State for the Colonies, dated Downing Street, 15th June, 1893, His Excellency the Governor was apprised that the title of "Honourable," appertaining to Members of the Executive and Legislative Councils in colonies possessing Responsible Government, whether confined to duration of office or continued for life, is approved by Her Majesty for use and recognition throughout her dominions, either during office or for life, as the case may be.

By further despatch of 10th March, 1894, the Secretary of State announces that he is prepared in future to submit for the approval of the Queen the recommendation of the Governor of any colony having Responsible Government that the President of the Legislative Council or the Speaker of the Legislative Assembly may, on quitting office after three years' service in their respective offices, be permitted to retain the title of "Honourable." This title has since been conferred on Sir F. D. Bell, Sir G. M. O'Rorke, and Major William Jukes Steward.

Besides the Members of the Executive and Legislative Councils, the following ex-Ministers whose names do not appear in the list given above are allowed, as such, to retain the title of "Honourable": Bryce, John, 1884; Dick, Thomas, 1884; Fergus, Thomas, 1891; Gisborne, William, 1873; Haultain, Colonel T. M., 1870; Hislop, Thomas W., 1891; Johnston, Walter W., 1884; Mitchelson, Edwin, 1891; Oliver, Richard, 1884; Reynolds, William H., 1876; Richardson, George F., 1891; Rolleston, William, 1884; Tole, Joseph A., 1888.

GOVERNOR OF NEW ZEALAND.

Glasgow, His Excellency the Right Honourable David, Earl of, G.C.M.G., a Captain of the Royal Navy, served in the White Sea during the Russian war, and in the Chinese war of 1857, and retired in 1878; born, 1833; married, in 1873, Dorothea Thomasina, daughter of Sir Edward Hunter-Blair; appointed February 24, and assumed office June 7, 1892, as Governor and Commander-in-Chief in and over Her Majesty's Colony of New Zealand and its Dependencies. Salary, £5,000. Residences: Government House, Wellington; and Government House, Auckland.

Private Secretary and Aide-de-Camp—Edward Hay Mackenzie Elliot (Major, South Lancashire Regiment). Assistant Private Secretary—Hon. Gathorne Gathorne-Hardy.

Aide-de-Camp—Edward Francis Clayton (Lieutenant, Scots Guards). Extra Aide-de-Camp—R. W. P. Clarke-Campbell-Preston (Captain, 3rd Battalion Black Watch Royal Highlanders).

Administrator of the Government.—A dormant commission empowers the Chief Justice of the Colony for the time being to administer the Government in case of the death, incapacity, removal, or departure of the Governor.

EXECUTIVE COUNCIL, JULY, 1895.

His Excellency the Governor presides.

Hon. R. J. Seddon, Premier, Minister for Public Works, Minister of Defence, and Native Minister.

Hon. Sir P. A. Buckley, K.C.M.G., Attorney-General and Colonial Secretary.

Hon. W. P. Reeves, Minister of Education, Commissioner of Stamp Duties, Minister of Labour, and Minister of Justice.

Hon. A. J. Cadman, Minister of Mines and Minister of Railways.

Hon. J. McKenzie, Minister of Lands and Immigration, Minister of Agriculture, and Commissioner of Forests.

Hon. J. G. Ward, Colonial Treasurer, Postmaster-General, Electric Telegraph Commissioner, Commissioner of Customs, Minister of Marine, and Minister of Industries and Commerce.

Hon. J. Carroll (without portfolio), representing the Native race.

Hon. W. Montgomery (without portfolio).

Clerk of Executive Council—Alexander James Willis.

THE GENERAL ASSEMBLY.

Legislative Council.

The number of members at present constituting the Legislative Council is forty-four. The number cannot be less than ten, but is otherwise unlimited. Prior to 1891 Councillors summoned by the Governor held their appointments for life, but on the 17th of September of that year an Act was passed making future appointments to the Council tenable for seven years only, to be reckoned from the date of the writ of summons of the Councillor's appointment, though every such Councillor may be reappointed. The qualifications are that the person to be appointed be of the full age of twenty-one years, and a subject of Her Majesty, either natural-born or naturalised by or under any Act of the Imperial Parliament or by or under any Act of the General Assembly of New Zealand. All contractors to the public service to an amount of over £50 and Civil servants of the colony are ineligible as Councillors. Payment of Councillors is at the rate of £150 a year, payable monthly. Actual travelling-expenses to and from Wellington are also allowed. A deduction of £1 5s. per sitting day is made in case of an absence, except through illness or other unavoidable cause, exceeding five sitting days in any one session. Under "The Legislative Council Act, 1891," a seat is vacated by any member of the Council—(1), If he takes any oath or makes any declaration or acknowledgment of allegiance, obedience, or adherence to any foreign Prince or Power; or (2), if he does, or concurs in, or adopts any act whereby he may become a subject or citizen of any foreign State or Power, or is entitled to the rights, privileges, or immunities of a subject of any foreign State or Power; or (3), if he is a bankrupt, or compounds with his creditors under any Act for the time being in force; or (4), if he is a public defaulter, or is attainted of treason, or is convicted of felony or any infamous crime; or (5), if he resigns his seat by writing under his hand addressed to and accepted by the Governor; or (6), if for more than one whole session of the General Assembly he fails, without permission of the Governor notified to the Council, to give his attendance in the Council. By the Standing Orders of the Council, the presence of one-fourth of the members of the Council, exclusive of those who have leave of absence, is necessary to constitute a meeting for the exercise of its powers. This rule, however, may be altered from time to time by the Council. The ordinary sitting-days are Tuesdays, Wednesdays, Thursdays, and Fridays, from 2.30 p.m. to 5 p.m., resuming again at 7.30 when necessary.

ROLL OF MEMBERS OF THE HONOURABLE THE LEGISLATIVE COUNCIL OF NEW ZEALAND, June, 1895.

Speaker—The Hon. HENRY JOHN MILLER.

Chairman of Committees—The Hon. WILLIAM DOUGLAS HALL BAILLIE.

Name.	Provincial District.	Date of Appointment.
Acland, the Hon. John Barton Arundel ..	Canterbury ..	8 July, 1865.
Baillie, the Hon. William Douglas Hall ..	Marlborough	8 March, 1861.
Barnicoat, the Hon. John Wallis ..	Nelson ..	14 May, 1883.
Bolt, the Hon. William Mouat	Otago ..	15 October, 1892.
Bonar, the Hon. James Alexander ..	Westland ..	27 June, 1868.
Bowen, the Hon. Charles Christopher ..	Canterbury ..	23 January, 1891.

ROLL OF MEMBERS OF THE LEGISLATIVE COUNCIL—*continued.*

Name.	Provincial District.	Date of Appointment.
Buckley, the Hon. Sir Patrick Alphonsus, K.C.M.G.	Wellington	25 July, 1878.
Feldwick, the Hon. Henry	Otago	15 October, 1892.
Grace, the Hon. Morgan Stanislaus, C.M.G.	Wellington	13 May, 1870.
Holmes, the Hon. Mathew	Otago	19 June, 1866.
Jenkinson, the Hon. John Edward	Canterbury	6 June, 1893.
Jennings, the Hon. William Thomas	Auckland	15 October, 1892.
Johnston, the Hon. Charles John	Wellington	23 January, 1891.
Kelly, the Hon. Thomas	Taranaki	15 October, 1892.
Kenny, the Hon. Courtney William Aylmer Thomas	Marlborough	15 May, 1885.
Kerr, the Hon. James	Westland	15 October, 1892.
McCullough, the Hon. William	Auckland	15 October, 1892.
MacGregor, the Hon. John	Otago	15 October, 1892.
McLean, the Hon. George	Otago	19 December, 1881.
Mantell, the Hon. Walter Baldock Durant	Wellington	19 June, 1866.
Miller, the Hon. Henry John (Speaker)	Otago	8 July, 1865.
Montgomery, the Hon. William	Canterbury	15 October, 1892.
Morris, the Hon. George Bentham	Auckland	15 May, 1885.
Oliver, the Hon. Richard	Otago	10 November, 1881.
Ormond, the Hon. John Davies	Hawke's Bay	23 January, 1891.
Peacock, the Hon. John Thomas	Canterbury	3 June, 1873.
Pharazyn, the Hon. Robert	Wellington	15 May, 1885.
Pollen, the Hon. Daniel	Auckland	12 May, 1873.
Reynolds, the Hon. William Hunter	Otago	6 May, 1878.
Richardson, the Hon. Edward, C.M.G.	Wellington	15 October, 1892.
Rigg, the Hon. John	Wellington	6 June, 1893.
Scotland, the Hon. Henry	Taranaki	24 February, 1868.
Shephard, the Hon. Joseph	Nelson	15 May, 1885.
Shrimski, the Hon. Samuel Edward	Otago	15 May, 1885.
Stevens, the Hon. Edward Cephas John	Canterbury	7 March, 1882.
Stewart, the Hon. William Downie	Otago	23 January, 1891.
Swanson, the Hon. William	Auckland	15 May, 1885.
Taiaroa, the Hon. Hori Kerei	Otago	15 May, 1885.
Wahawaha, the Hon. Major Ropata, N.Z.C.	Auckland	10 May, 1887.
Walker, the Hon. Lancelot	Canterbury	15 May, 1885.
Walker, the Hon. William Campbell	Canterbury	15 October, 1892.
Whitmore, the Hon. Sir George Stoddart, K.C.M.G.	Hawke's Bay	31 August, 1863.
Whyte, the Hon. John Blair	Auckland	23 January, 1891.
Williams, the Hon. Henry	Auckland	7 March, 1882.

Clerk of Parliaments, Clerk of the Legislative Council, and Examiner of Standing Orders upon Private Bills—Leonard Stowe.

Clerk-Assistant—Arthur Thomas Bothamley.

Second Clerk-Assistant—George Moore.

Interpreter—Henry S. Hadfield.

HOUSE OF REPRESENTATIVES.

The number of members constituting the House of Representatives is seventy-four—seventy Europeans and four Maoris. This number was fixed by the Act of 1887, which came for the first time into practical operation at the general election of 1890. Previously (from 1881) the House consisted of ninety-five members—ninety-one Europeans and four Maoris. The North Island returns thirty-one European members, and the Middle Island thirty-nine. The Cities of Auckland, Wellington, Christchurch, and Dunedin return each three members, and all other electoral districts one each. The elections are triennial, except in the case of a dissolution by the Governor. Every registered elector, being of the male sex, and free from any of the disqualifications mentioned in section 8 of "The Electoral Act, 1893," is eligible for membership. All contractors to the public service of New Zealand to whom any public money above the sum of £50 is payable, directly or indirectly, in any one financial year, as well as the Civil servants of the colony, are incapable of being elected as or of sitting or voting as members. The payment made to members of the House of Representatives is £20 per month, amounting to £240 per annum. £2 for every sitting-day exceeding five is deducted on account of absence during session not due to sickness or other unavoidable cause. Travelling-expenses to and from Wellington are also allowed. This scale of payment came into force on the 1st January, 1893, under the provisions of "The Payment of Members Act, 1892." Twenty members, exclusive of the Speaker, constitute a quorum. Unless otherwise ordered, the sitting-days of the House are Tuesdays, Wednesdays, Thursdays, and Fridays, from 2.30 to 5.30, resuming at 7.30 p.m. Order of admission to the Speaker's Gallery is by ticket obtained from the Speaker. The Strangers' Gallery is open free to the public.

ROLL OF MEMBERS OF THE HOUSE OF REPRESENTATIVES, JUNE, 1895.

Speaker—The Hon. Sir George Maurice O'Rorke, Kt.

Chairman of Committees—Arthur Robert Guinness.

Name.	Electoral District.	Date of Notification of Return of Writ.
For European Electorates.		
Allen, James	Bruce	13 December, 1893.
Bell, Francis Henry Dillon	City of Wellington	"
Buchanan, Walter Clarke	Wairarapa	"
Buddo, David	Kaiapoi	"
Buick, Thomas Lindsay	Wairau	"
Button, Charles Edward	City of Auckland	"
Cadman, Hon. Alfred Jerome	Waikato	"
Carncross, Walter Charles Frederick	Taieri	"
Carnell, Samuel	Napier	"
Carroll, Hon. James	Waiapu	"
Collins, William Whitehouse	City of Christchurch	"
Crowther, William	City of Auckland	"
Duncan, Thomas	Oamaru	"
Duthie, John	City of Wellington	"
Earnshaw, William	City of Dunedin	"
Flatman, Frederick Robert	Pareora	"

Roll of Members of the House of Representatives—*continued.*

Name.	Electoral District.	Date of Notification of Return of Writ.
Fraser, William	Wakatipu	13 December, 1893.
Graham, John	City of Nelson	„
Green, James	Waikouaiti	„
Grey, Right Hon. Sir George, P.C., K.C.B.	City of Auckland	„
Guinness, Arthur Robert	Grey	„
Hall, Charles	Waipawa	„
Hall-Jones, William	Timaru	„
Harris, Benjamin	Franklin	„
Hogg, Alexander Wilson	Masterton	„
Houston, Robert Morrow	Bay of Islands	„
Hutchison, George	Patea	„
Hutchison, William	City of Dunedin	„
Joyce, John	Lyttelton	„
Kelly, James Whyte	Invercargill	„
Kelly, William	Bay of Plenty	„
Lang, Frederic William	Waipa	„
Larnach, Hon. William James Mudie, C.M.G.	Tuapeka	17 July, 1894.
Lawry, Frank	Parnell	13 December, 1893.
McGowan, James	Thames	„
McGuire, Felix	Egmont	„
McKenzie, Hon. John	Waihemo	„
McKenzie, Roderick	Buller	„
Mackenzie, Thomas	Clutha	„
Mackintosh, James	Wallace	„
McLachlan, John	Ashburton	„
McNab, Robert	Mataura	„
Maslin, William Stephen	Rangitata	„
Massey, William Ferguson	Waitemata	17 April, 1894.
Meredith, Richard	Ashley	13 December, 1893.
Millar, John Andrew	Chalmers	„
Mills, Charles Houghton	Waimea-Sounds	„
Mitchelson, Hon. Edwin	Eden	„
Montgomery, William Hugh	Ellesmere	„
Morrison, Arthur	Caversham	„
Newman, Alfred Kingcome	Wellington Suburbs	„
O'Regan, Patrick Joseph	Inangahua	„
O'Rorke, Hon. Sir George Maurice, Knt. Bach.	Manukau	„
Pinkerton, David	City of Dunedin	
Pirani, Frederick	Palmerston	„
Reeves, Hon. William Pember	City of Christchurch	„
Russell, George Warren	Riccarton	„
Russell, William Russell	Hawke's Bay	„
Saunders, Alfred	Selwyn	„
Seddon, Hon. Richard John	Westland	„
Smith, Edward Metcalf	New Plymouth	„
Smith, George John	City of Christchurch	„
Stevens, John	Rangitikei	„
Steward, Hon. William Jukes	Waitaki	„
Stout, Hon. Sir Robert, K.C.M.G.	City of Wellington	„
Tanner, William Wilcox	Avon	„
Thompson, Robert	Marsden	„

ROLL OF MEMBERS OF THE HOUSE OF REPRESENTATIVES—*continued.*

Name.	Electoral District.	Date of Notification of Return of Writ.
Ward, Hon. Joseph George ..	Awarua	13 December, 1893.
Willis, Archibald Dudingston ..	Wanganui ..	"
Wilson, James Glenny	Otaki	"
For Maori Electorates.		
Heke, Hone	Northern Maori ..	11 January, 1894.
Parata, Tame	Southern Maori ..	30 December, 1893.
Pere, Wi	Eastern Maori ..	11 January, 1894.
Te Ao, Ropata	Western Maori ..	2 January, 1894.

Clerk of House of Representatives—G. Friend.
Clerk-Assistant—H. Otterson.
Second Clerk-Assistant—A. J. Rutherfurd.
Reader and Clerk of Bills and Papers—Thomas Bracken.
Chief *Hansard* Reporter—C. C. N. Barron.
Interpreters—L. M. Grace, ————.
Sergeant-at-Arms—W. Fraser.
Clerk of Writs—H. Pollen.
Deputy Clerk of Writs—R. H. Govett.
Acting Librarian—H. L. James, B.A.

REPRESENTATION.—(JUNE, 1895.)

On the basis of the results of the census of 1891 the colony is divided in accordance with the Representation Act Amendment Acts, 1887 and 1889 into sixty-two districts for purposes of European representation, fifty-eight rural districts having one member each, and four city electorates three members each. The names and boundaries of these districts were duly proclaimed in the *New Zealand Gazette* of the 26th January, 1892. The Act of 1889 directed that in computing for electoral purposes the population of the colony 28 per cent. should be added to the country population —*i.e.*, all outside towns of 2,000 inhabitants and over. The total population of the colony (other than Maoris), with the addition aforesaid, having been ascertained, was then divided by the number of members (70), and the quotient thus obtained formed the quota. The four city electoral districts (which have three members each) were so defined in extent that the population should be three times the quota. Inasmuch as it would be impossible to divide the country into a given number of districts all having exactly the precise quota of population, the law permits the Commissioners to make an allowance of 750 persons by way of addition to or deduction from the population of rural districts, and of 100 in case of city electorates; and due consideration is given to community of interest, facilities of communication, and topographical features, as far as possible, in forming the districts.

A table showing the names of the electoral districts as at the the last general election, with the number of members returnable, the actual town and rural population as at the census of April, 1891, and the nominal population for each district, was given on page 30 of the Official Year-book for 1893.

The North Island with its adjacent islands includes 27 electoral districts, having 31 members; the Middle and Stewart Islands having 35 districts and 39 members.

These districts are, as above stated, for purposes of European representation. But the colony is again divided into four districts for purposes of Maori representation, under Part V. of "The Electoral Act, 1893," each district having one Native member elected by the Maoris: so that the House of Representatives consists of 74 members altogether—70 Europeans and 4 Maoris.

GENERAL ELECTIONS FOR EUROPEAN REPRESENTATIVES HELD FROM THE YEAR 1853.

Parliament.	Date of General Election.	Number of Names on Roll of Electors.	Number of Members returned.	Number of Members returned unopposed.	Number of Votes recorded (or of Voters recording Votes).	Population of the Colony.	Average Number of		
							Persons to each Member.	Persons to each Elector.	Electors to each Member.
First ...	1853	[a]5,934	37	*	*	30,000	811	5·1	160
Second ...	1855	[b]10,324	37	*	*	37,192	1,005	3·6	279
Third ...	1861	13,466	53	*	*	79,711	1,504	5·9	254
Fourth	1866	[c]33,338	72	*	*	190,607	2,647	5·7	463
Fifth ...	1871	47,275	74	*	*	248,400	3,357	5·3	639
Sixth ...	1875	61,755	84	*	*	375,856	4,474	6·1	735
Seventh ...	1879	82,271	84	4	43,776	463,729	5,521	5·6	979
Eighth ...	1881	120,972	91	11	69,985	500,910	5,505	4·1	1,329
Ninth ...	1884	137,686	91	11	74,672	564,304	6,201	4·1	1,513
Tenth ...	1887	175,410	91	5	111,911	603,361	6,630	3·4	1,928
Eleventh ...	1890	183,171	70	6	136,337	625,508	8,936	3·4	2,617
Twelfth ...	1893	[d]302,997	70	3	[de]220,082	672,265	9,604	2·2	4,328

* Information not obtainable.

[a] Including 100, the estimated number in Akaroa District, for which there is no return.

[b] Including 800, the estimated number in the electorates of Town of New Plymouth, Grey and Bell, and Omata, for which districts there are no returns.

[c] Electors for the Electoral District of "The Otago Goldfields" not included.

[d] Men and women.

[e] Voters recording votes.

THE ELECTORAL ACT, 1893.

By this Act, which came into force on the 19th September, 1893, the great step was taken of admitting women to the franchise, and other changes were made in the electoral law, the most important of which are here referred to.

By section 3, the word "person," wherever it occurs throughout the Act, includes "woman," and the words and expressions in the Act importing the masculine gender include women, except when otherwise expressly stated. Under the provisions of section 6 the qualifications of electors are the same for each sex.

European Representation.

These qualifications are possessed by—

1. Every adult (not a Maori) who has a freehold of the value of £25 in his (or her) own right, to which he has been entitled for six months before the registration of his vote, and who is not registered in respect of a freehold or residential qualification in the same or another district.

2. Every adult (not a Maori) who has resided for one year in the colony, and in the electoral district for which he claims to vote during the three months preceding the registration of his (or her) vote, and is not registered in respect of a freehold or residential qualification for the same or any other district.

An important clause is added, bringing into force what is known as the "one-person-one-roll" principle. It runs:—

"No person shall be entitled to be registered on more than one electoral roll within the colony, whatever the number or nature of the qualifications he may possess, or wherever they may be." There is a penalty under section 13 for breach of this. [What is termed the "one-man-one-vote" principle, which prohibits an elector from voting in more than one electorate has been in force since 1889.]

Maori voting has been restricted, in accordance with the "one-person-one-roll" principle, by the provisions of section 7: Every Maori possessed of a £25 freehold, and every half-caste having either the freehold or the residential qualification, may demand to be registered on the roll of electors for European representation; but cannot while so registered vote at elections of Maori members, or become a candidate for a Maori district.

By section 9 any registered elector is qualified to stand for a seat in the House of Representatives. But it is expressly declared that women shall not be capable of being nominated as candidates, or of being elected members of the House of Representatives, or of being appointed members of the Legislative Council.

Seamen and commercial travellers (section 61) and shearers ("Electoral Laws Amendment Act, 1893," section 3), whose names are entered on the roll for any electoral district, may take out electors' rights enabling them to vote in any part of the colony at the election for that district. They may record their votes—seamen with any Collector of Customs, the others with any Postmaster—at any time between the date of issue of the writ and the hour for closing the polling-booth.

Under section 126, the name of every qualified elector who fails to record his vote is to be removed from the roll after the election. The Returning Officer must mark a fair copy of the roll so as to indicate every voter who has voted at an election, and must write, where necessary, the words "candidate" or "prohibited from voting." He is then to transmit the roll, so marked, to the Registrar of Electors, who must erase the names of all electors not shown to have voted. But electors whose names have been so removed can at once apply to be replaced on the roll.

Maori Representation.

"Maori" is by section 148 of the Act defined to mean an aboriginal inhabitant of New Zealand, and to include half-castes and their descendants by Natives.

The four Native members are chosen by votes of the Maoris inhabiting the four Maori electoral districts into which the colony is divided, and every Maori of twenty-one years of age and upwards and not specially disqualified is entitled, without registration, to vote as an elector for the district he resides in, provided he (or she) be not registered on any European roll.

Every Maori male elector is qualified to be a member of the House of Representatives for any Maori electoral district.

THE GENERAL ELECTION OF 28TH NOVEMBER, 1893.

For European Representatives.

For this election 1,440 polling-places were appointed. This number is 418 in excess of the number made use of at the previous election in the year 1890.

A table was given on page 254 of the Year-book of 1894, showing the electoral districts, the number of electors on each roll, the numbers of voters who recorded votes, and the number to be struck off the roll. It will be seen that the total number of electors on the rolls was 302,997. Of these, 193,536 were stated to be men, and 109,461 women. There is no doubt that the number of names of males on the rolls was considerably in excess of the actual fact, for the total adult male population of the colony at the census of 1891 was only 167,762, and an estimate for the date of the election shows this number to have increased only to 180,247.

The total number (302,997) must therefore be regarded as too high, owing to repetition of names of persons who had moved from one district to another, and other causes. It was, however, shown in the table that there were 72,376 electors in the contested districts who did not vote, and whose names will since have been struck off the rolls, thereby purging them. The voters who recorded their votes numbered 220,082. In the case of the four city constituencies each elector had the right of voting for three members.

The subjoined table gives the population of each electoral district as shown by the census, and the number of male and female voters at the election:—

Electoral Districts.	Number of Members.	Population, Census, 1891.	Number of Voters who recorded Votes.		
			Men.	Women.	Total.
North Island—					
Bay of Islands	1	8,681	2,202	828	3,030
Marsden	1	8,231	1,937	963	2,900
Waitemata	1	8,209	2,005	1,126	3,131
Eden	1	9,061	1,950	1,571	3,521
City of Auckland ..	3	31,444	6,045	5,283	11,328
Parnell	1	9,299	1,571	1,695	3,266
Manukau	1	8,992	1,426	1,377	2,803
Franklin	1	8,720	1,798	1,481	3,279
Waipa..	1	8,240	1,820	1,073	2,893
Waikato	1	7,880	1,401	840	2,241
Thames	1	9,247	1,718	1,271	2,989
Bay of Plenty	1	8,283	1,832	1,003	2,835
Waiapu	1	8,750	2,593	1,312	3,905
Hawke's Bay	1	8,790	2,660	938	3,598
Napier	1	10,147	2,048	1,660	3,708
Waipawa	1	8,805	2,690	1,299	3,989
New Plymouth	1	9,103	1,947	1,289	3,236
Egmont	1	8,080	1,867	803	2,670
Patea	1	7,728	1,670	961	2,631
Masterton	1	9,026	2,552	1,212	3,764
Wairarapa	1	7,877	2,236	1,313	3,549
Wanganui	1	9,179	2,050	1,454	3,504
Rangitikei	1	8,769	2,669	1,355	4,024
Palmerston	1	9,453	2,244	1,443	3,687
Otaki	1	8,757	1,698	767	2,465
City of Wellington ..	3	31,690	7,238	6,146	13,384
Wellington Suburbs ..	1	9,005	1,932	1,622	3,554
Totals, North Island	31	281,446	63,799	42,085	105,884
Middle Island—					
City of Nelson	1	9,452	1,814	1,473	3,287
Buller	1	8,383	2,137	1,284	3,421
Inangahua	1	7,843	1,965	916	2,881
Waimea-Sounds ..	1	7,724	1,368	622	1,990
Wairau	1	8,892	1,912	1,314	3,226
Grey	1	9,290	2,252	1,198	3,450
Westland	1	9,215	*	*	*
Ashley..	1	8,390	1 763	1,072	2,835
Kaiapoi	1	8,562	1,788	1,299	3,087
Avon	1	9,461	1,747	1,443	3,190
City of Christchurch ..	3	31,454	6,313	5,989	12,302
Lyttelton	1	9,778	1,465	1,324	2,789
Riccarton	1	8,665	1,511	1,417	2,928

* No contest.

Electoral Districts.	Number of Members.	Population, Census, 1891.	Number of Voters who recorded Votes. Men.	Women.	Total.
Middle Island—*continued.*					
Ellesmere	1	8,794	1,693	1,166	2,859
Selwyn	1	8,160	1,432	1,006	2,438
Ashburton	1	8,599	2,086	1,380	3,466
Rangitata	1	7,660	1,602	958	2,560
Pareora	1	7,728	1,800	1,171	2,971
Timaru	1	8,999	1,809	1,612	3,421
Waitaki	1	7,788	1,576	994	2,570
Oamaru	1	9,419	1,685	1,423	3,108
Waihemo	1	7,742	2,001	1,267	3,268
Waikouaiti	1	7,820	1,240	948	2,188
Chalmers	1	9,793	1,805	1,584	3,389
City of Dunedin ..	3	31,157	6,571	6,306	12,877
Caversham	1	9,760	1,305	1,277	2,582
Taieri	1	7,781	1,607	1,117	2,724
Bruce	1	7,667	*	*	*
Tuapeka	1	7,667	1,858	1,007	2,865
Clutha	1	8,696	1,942	1,168	3,110
Mataura	1	8,623	2,088	993	3,081
Wakatipu	1	8,508	1,967	923	2,890
Wallace	1	8,223	1,935	906	2,841
Invercargill	1	9,052	1,956	1,648	3,604
Awarua	1	8,168	*	*	*
Totals, Middle and Stewart Islands ..	39	344,913	65,993	48,205	114,198
Totals, all Electoral Districts ..	70	626,359	129,792	90,290	220,082

The voters and votes recorded in the four city electorates where the electors had the right of voting for three members are next given, with the full number of votes exercisable, showing that some of the voters avoided voting for more than one or two candidates.

City.	Number of Members.	Number of Electors on Roll.	Number of Voters who recorded Votes.	Number of Votes recorded.	Number of Votes exercisable.
Auckland ..	3	16,788	11,328	30,584	33,984
Wellington ..	3	16,497	13,384	36,102	40,152
Christchurch ..	3	14,612	12,302	32,715	36,906
Dunedin ..	3	16,936	12,877	34,584	38,631
Totals ..	12	64,833	49,891	133,985	149,673

The next table shows the total number of women on the rolls to have been 109,461 out of an estimated adult female population of 139,915: the proportion of women who registered as electors is thus found to be 78·23 per cent. The number who voted was 90,290, being the high percentage of 85·18 of the number on the rolls, excluding the districts in which there was no contest.

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* No contest.

WOMEN ON ROLLS, AND NUMBER WHO VOTED.

Electoral Districts.	Number of Women on Rolls.	Number of Women who voted.	Electoral Districts.	Number of Women on Rolls.	Number of Women who voted.
Bay of Islands	1,051	828	Grey	1,376	1,198
Marsden	1,267	963	Westland	1,278	*
Waitemata	1,335	1,126	Ashley	1,263	1,072
Eden	1,777	1,571	Kaiapoi	1,420	1,299
City of Auckland	6,660	5,283	Avon	1,732	1,448
Parnell	1,925	1,695	City of Christch'ch	6,710	5,989
Manukau	1,679	1,377	Lyttelton	1,581	1,324
Franklin	1,679	1,481	Riccarton	1,634	1,417
Waipa	1,306	1,073	Ellesmere	1,373	1,166
Waikato	987	840	Selwyn	1,207	1,006
Thames	1,387	1,271	Ashburton	1,573	1,380
Bay of Plenty	1,172	1,003	Rangitata	1,119	958
Waiapu	1,437	1,312	Pareora	1,277	1,171
Hawke's Bay	1,278	938	Timaru	1,804	1,612
Napier	1,849	1,660	Waitaki	1,227	994
Waipawa	1,482	1,299	Oamaru	1,638	1,423
Masterton	1,458	1,212	Waihemo	1,357	1,267
Wairarapa	1,503	1,313	Waikouaiti	1,291	948
New Plymouth	1,465	1,289	Chalmers	1,818	1,584
Egmont	877	803	City of Dunedin	7,644	6,306
Patea	1,126	961	Caversham	1,552	1,277
Wanganui	1,660	1,454	Taieri	1,356	1,117
Rangitikei	1,548	1,355	Bruce	1,200	*
Palmerston	1,702	1,443	Tuapeka	1,115	1,007
Otaki	964	767	Clutha	1,353	1,168
City of Wellington	7,280	6,146	Mataura	1,348	993
Wellington Suburbs	1,860	1,622	Wakatipu	1,142	923
City of Nelson	1,629	1,473	Wallace	1,186	906
Waimea-Sounds	740	622	Invercargill	1,968	1,648
Wairau	1,428	1,314	Awarua	979	*
Buller	1,431	1,284			
Inangahua	998	916	Totals	109,461	90,290

A feature of the election was the orderliness and sobriety of the people. Women were in no way molested. In many places canvassing was carried on by the women electors with considerable energy.

The Election for Maori Members.—Polling-day, 20th December, 1893.

Out of a total Maori population amounting to 41,993 persons (the census figures are used), 11,269 voted at the general election. This number includes persons of both sexes. At the election of 1890, when women did not possess the franchise, 7,086 males gave their votes, the population being then about the same as it was in 1893. Of the four districts into which the colony is divided, the voting was highest in proportion to population in the Eastern, and lowest in the Western District.

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* No contest.

Electoral Districts.	Number who voted.	Per cent. of Population at all Ages.
North Island—		
Northern Maori Electoral District ..	1,674	18·66
Eastern Maori " " ..	6,305	43·66
Western Maori " " ..	2,741	16·75
South Island—		
Southern Maori " " ..	549	24·75

OFFICIAL LIST.

[June, 1895.]

CIVIL ESTABLISHMENT AT SEAT OF GOVERNMENT.

PREMIER'S OFFICE.

Premier—Hon. R. J. Seddon
Secretary to Premier and to Cabinet—A. J. Willis
Shorthand- and Type-writer—J. Gray

COLONIAL SECRETARY'S DEPARTMENT.

CHIEF OFFICE.

Colonial Secretary—Hon. Sir P. A. Buckley, K.C.M.G.
Under-Secretary—Hugh Pollen
Chief Clerk—R. H. Govett
Clerks—R. F. Lynch, J. F. Andrews, L. W. Loveday
Housekeeper and Chief Messenger—W. H. Hennah.

AUDIT OFFICE.

Controller and Auditor-General—J. E. FitzGerald, C.M.G.
Assistant Controller and Auditor—J. C. Gavin
Chief Clerk—J. G. Anderson
Clerks—L. C. Roskruge, W. Dodd, H. S. Pollen, W. G. Holdsworth, E. J. A. Stevenson, C. M. Georgeson, A. W. Eames, B. A. Meek
Extra Clerks—D. C. Innes, J. Swift, A. E. Bybles, J. Ward, A. A. Bethune, W. H. Carlyle.
Audit Officer, Agent-General's Office, London—C. F. W. Palliser
Audit Travelling Inspectors—P. P. Webb, A. H. Maclean, J. King, W. R. Holmes, E. T. Greville, G. H. I. Easton, J. M. Glasgow, C. P. Johnson, J. T. Dumbell.

REGISTRAR-GENERAL'S OFFICE.

Registrar-General—E. J. Von Dadelszen
Chief Clerk—G. Drury
Clerks—W. C. Sproule, F. H. Machattie, E. F. Norris, S. Coffey
Cadet—W. W. Cook.

PRINTING AND STATIONERY DEPARTMENT.

Government Printer, Stationery Office Manager, and Controller of Stamp Printing—S. Costall
Superintending Overseer—J. Burns
Chief Clerk and Accountant—B. B. Allen
Clerk and Computer—B. K. Manley
Clerks—F. Barraud, J. W. Hall, R. Watts, A. Stace, A. Williams
Cadet—R. A. Gray
Overseers—J. J. Gamble, B. Wilson
Sub-overseer, Jobbing-room—G. Tattle
Overseer, Machine-room—C. Young
Overseer, Binding Branch—W. Franklin
Sub-overseer, Binding Branch—G. H. Broad
Night Foreman—J. F. Rogers
Stamp Printer—H. Hume
Stereotyper and Electrotyper—W. J. Kirk
Readers—J. W. Henley, W. Fuller, M. F. Marks, H. S. Mountier
Forewoman, Binding Branch—Miss Marsden
Engineer—

COLONIAL TREASURER'S DEPARTMENT.

CHIEF OFFICE.

Colonial Treasurer—Hon. J. G. Ward
Secretary to the Treasury, Receiver-General, and Paymaster-General—James B. Heywood

Accountant to the Treasury—Robert J. Collins
Cashier—C. E. Chittey
Corresponding Clerk—H. Blundell
Private Secretary and Shorthand-writer to Colonial Treasurer—F. Hyde
Clerks—C. Meacham, R. B. Vincent, W. E. Cooper, J. Driscoll, J. R. Duncan, E. L. Mowbray, A. O. Gibbes, T. H. Burnett, J. Radcliffe, J. Holmes, H. N. W. Church, J. Eman Smith, A. J. Morgan, T. J. Davis, F. H. Tuckey, C. E. Matthews, H. Hawthorne
Cadets—W. Jeff, W. Wilson, F. Davies
Officer for Payment of Imperial Pensions at Auckland—B. J. Devaney

Friendly Societies' and Trades Unions' Registry Office; also Office of the Registrar under the Industrial Conciliation and Arbitration Act.

Registrar—E. Mason
Revising Barrister for Friendly Societies and Trades Unions—L. G. Reid
Clerk—C. T. Benzoni

DEPARTMENT OF INDUSTRIES AND COMMERCE.

Minister—Hon. J. G. Ward
Clerk—A. M. Smith

LAND AND INCOME TAX DEPARTMENT.

Commissioner of Taxes—J. McGowan
Deputy Commissioner of Taxes—G. F. C. Campbell
Chief Clerk—F. J. M. D. Walmsley
Accountant—P. Heyes
Clerks—G. Maxwell, H. Nancarrow, A. J. McGowan, J. P. Dugdale, J. M. King, D. R. Purdie, A. F. Oswin, G. W. Jänisch, J. Stevenson, C. V. Kreeft, J. W. Black, H. H. Seed, D. G. Clark, T. Oswin, J. R. Smyth, H. L. Wiggins
Cadets—W. J. Organ, R. Hepworth, J. J. Hunt, C. de R. Andrews, M. J. Crombie, W. A. Tanner

DEPARTMENT OF JUSTICE.

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Minister of Justice—Hon. W. P. Reeves
Under-Secretary—C. J. A. Haselden, J.P.
Chief Clerk—F. Waldegrave
Translator—G. H. Davies
Clerks—C. B. Jordan, R. C. Sim, B. M. Wilson, R. Hirter

Crown Law Office.

Attorney-General—Hon. Sir P. A. Buckley, K.C.M.G.
Solicitor-General—W. S. Reid
Assistant Law Officer—L. G. Reid
Law Draftsman—F. Fitchett, M.A., LL.D.
Clerk—E. Y. Redward

Patent Office.

Registrar of Patents, Designs, and Trademarks—C. J. A. Haselden, J.P.
Deputy Registrar—F. Waldegrave
Clerks—J. C. Lewis, F. J. Stewart

Judicial.

Supreme Court Judges.

Cihef Justice—
  Wellington—Sir J. Prendergast, Knt.
Puisne Judges—
  Wellington—C. W. Richmond
  Auckland—E. T. Conolly
  Christchurch—J. E. Denniston
  Dunedin—J. S. Williams

District Court Judges.

Wairarapa, Wanganui, New Plymouth, Hawera, and Palmerston North—C. C. Kettle
Nelson—H. W. Robinson
Ashburton, Timaru, Oamaru, Queenstown, Naseby, Lawrence, Invercargill, Hokitika, Greymouth, Westport, and Reefton—C. D. R. Ward

Registrars of the Supreme Court.

Auckland—H. C. Brewer
New Plymouth—W. Stuart
Wanganui—C. C. Kettle
Napier—A. Turnbull
Gisborne—W. A. Barton
Wellington—D. G. A. Cooper
Nelson—H. W. Robinson
Blenheim—J. Allen
Christchurch—A. R. Bloxam
Hokitika—A. H. King
Dunedin—C. McK. Gordon
Invercargill—F. G. Morgan

Sheriffs.

Auckland—H. C. Brewer
Taranaki—W. G. P. O'Callaghan
Hawke's Bay—A. Turnbull
Poverty Bay—W. A. Barton

Wellington—D. G. A. Cooper
Wairarapa—T. Hutchison
Wanganui and Rangitikei—A. D. Thomson
Nelson—W. Heaps
Westland North—A. Greenfield
Central Westland—H. Lucas
Marlborough—J. B. Stoney
Canterbury—A. R. Bloxam
Timaru—C. A. Wray
Westland—A. H. King
Otago—C. McK. Gordon
Southland—W. Martin

Crown Solicitors.

Auckland—Hon. J. A. Tole
New Plymouth—A. Standish
Gisborne—J. W. Nolan
Napier—A. J. Cotterill
Wellington—H. Gully
Wanganui—S. T. Fitzherbert
Nelson—C. Y. Fell
Blenheim—R. McCallum
Christchurch—T. W. Stringer
Timaru—J. W. White
Hokitika—
Dunedin—B. C. Haggitt
Invercargill—T. M. Macdonald
Oamaru—A. G. Creagh

Crown Prosecutors (District Courts).

New Plymouth—A. Standish
Hawera—E. L. Barton
Wanganui and Palmerston North—S. T. Fitzherbert
Westport and Reefton—C. E. Harden
Hokitika—J. Park
Greymouth—M. Hannan
Timaru—J. W. White
Oamaru—A. G. Creagh
Nelson—C. Y. Fell
Queenstown—Wesley Turton
Invercargill—T. M. Macdonald

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Auckland—H. W. Northcroft
Pokeno, Waikato, &c.—T. Jackson
Onehunga, &c.—R. S. Bush*
Russell, &c.—J. S. Clendon
Tauranga, &c.—J. M. Roberts
Thames, &c.—H. E. Kenny*
Gisborne, &c.—J. Booth
New Plymouth, &c.—W. Stuart
Hawera, &c.—H. W. Brabant
Wanganui, &c.—C. C. Kettle
Palmerston North, &c.—R. L. Stanford
Wellington, &c.—J. C. Martin
Wairarapa, &c.—T. Hutchison
Napier, &c.—A. Turnbull
Nelson, &c.—H. W. Robinson, Wilson Heaps
Westport, Collingwood, &c.—A. Greenfield*
Blenheim, &c.—J. Allen*
Christchurch, &c.—R. Beetham
Kaiapoi, &c.—H. W. Bishop
Timaru, &c.—C. A. Wray
Greymouth, &c.—H. A. Stratford*
Hokitika, &c.—D. Macfarlane*
Dunedin, &c.—E. H. Carew
Oamaru, &c.—J. Keddell*
Milton, &c.—R. S. Hawkins*
Clyde, &c.—C. E. Rawson
Naseby—S. M. Dalgleish*
Invercargill, &c.—J. W. Poynton*
Chatham Islands—F. J. W. Gascoyne

Official Assignees in Bankruptcy.

Auckland—J. Lawson, J.P.
Wellington—J. Ashcroft, J.P.
Christchurch—G. L. Greenwood
Dunedin—C. C. Graham, J.P.

Clerks of District and Magistrates' Courts.

New Plymouth—W. G. P. O'Callaghan
Hawera—A. Trimble
Wanganui—A. D. Thomson
Palmerston North—W. Matravers
Masterton—F. H. Ibbetson
Nelson—C. H. Webb-Bowen
Hokitika—C. A. Barton
Greymouth—B. Harper
Westport—E. C. Kelling
Reefton—H. Lucas
Timaru—T. Howley
Ashburton—J. R. Colyer
Oamaru—W. G. Filleul
Invercargill—W. Martin
Queenstown—H. N. Firth
Lawrence—H. J. Abel
Naseby—E. Rawson

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Thames—E. W. Porritt
Coromandel—T. M. Lawlor
Te Aroha—J. Jordan
Whangarei—T. W. Tayler
Havelock and Cullensville (Marlborough)—T. A. Moresby
Nelson—C. H. Webb-Bowen
Motueka—H. E. Gilbert
Collingwood—S. J. Dew
Westport—E. C. Kelling

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* Are also Wardens of Goldfields.

Charleston—John Bird
Reefton—H. Lucas
Greymouth—B. Harper
Kumara—J. McEnnis
Hokitika—C. A. Barton
Naseby, &c.—E. Rawson
Wyndham—D. Bogue
Clyde, Blacks, and Alexandra—F. T. D. Jeffrey
Cromwell—J. Fleming
Queenstown and Arrowtown — H. N. Firth
Lawrence—H. J. Abel
Riverton—A. M. Eyes

Clerks of Magistrates' Courts.

Auckland—F. J. Burgess
Tauranga—J. Thomson
Gisborne—W. A. Barton
Hamilton—T. Kirk
Napier—A. S. B. Foster
Hastings—P. Skerrett
Marton, &c.—F. M. Deighton
Wellington—W. P. James
Blenheim—J. B. Stoney
Christchurch—W. G. Walker
Lyttelton—W. Shanaghan
Kaiapoi—M. Lynskey
Dunedin—W. Somerville

NATIVE LAND COURT.

Chief Judge—G. B. Davy
Judges — A. Mackay, D. Scannell, R. Ward, W. E. Gudgeon, W. J. Butler, H. F. Edger, W. G. Mair, L. O'Brien, J. A. Wilson, H. W. Brabant
Registrars — Auckland, J. W. Browne; Gisborne, J. Brooking; Wellington, H. D. Johnson

Commissioners of the Native Land Court.

R. S. Bush, J. Booth, A. Turnbull, J. S. Clendon, T. Jackson, C. C. Kettle, J. M. Roberts, W. Stuart, H. W. Bishop, E. H. Carew, F. J. W. Gascoyne, H. E. Kenny
Government Native Agent, Otorohanga —G. T. Wilkinson

VALIDATION COURT.

Judge—G. E. Barton
Registrar and Clerk—H. C. Jackson

CORONERS.

Coroners — Auckland, T. M. Philson, H. W. Northcroft, R. S. Bush, E. Baker; Akaroa, G. H. Saxton; Blenheim, J. Allen; Christchurch, R. Beetham and H. W. Bishop; Clyde, C. E. Rawson; Collingwood, E. Davidson; Coromandel, A. R. H. Swindley; Dunedin, E. H. Carew; Foxton, E. S. Thynne; Gisborne, J. Booth; Greymouth, H. A. Stratford; Hamilton, W. N. Searancke; Hawera, C. E. Major; Hokitika, D. Macfarlane and R. W. Wade; Invercargill, J. W. Poynton; Lawrence, R. S. Hawkins; Mahurangi, M. Angove; Marton, A. Simpson; Masterton, T. Hutchison; Napier, A. Turnbull; Naseby, S. M. Dalgleish; Nelson, O. Curtis, H. W. Robinson, W. Gibbs, and L. G. Boor; New Plymouth, W. Stuart; Oamaru, J. Keddell; Ohinemuri, J. N. E. Kenny; Opotiki, S. Bates; Otahuhu, S. Luke; Otaki, W. H. Simcox; Palmerston North, J. Linton; Pokeno, T. Jackson; Port Albert, J. Shepherd; Pahi, W. W. Ariell; Queenstown, L. Hotop; Raglan, W. H. Wallis; Southbridge, R. B. Willis; Tauranga, A. C. H. Tovey and J. M. Roberts; Te Awamutu, T. Gresham; Timaru, C. A. Wray; Te Kopuru, T. Webb; Thames, C. Haselden, A. Bruce, and H. E. Kenny; Waimate, E. M. Williams; Waipawa, S. Johnson; Wellington, J. Ashcroft and J. C. Martin; Westport, A. Greenfield; Wanganui, H. W. Brabant and C. C. Kettle; Whangarei, J. Bell; Woodville, E. J. Gothard; Chatham Islands, F. J. W. Gascoyne.

PRISONS DEPARTMENT.

Inspector—Lieut.-Colonel Arthur Hume, N.Z.M.
Clerk—T. E. Richardson
Gaolers — Auckland, George Sinclair Reston; Dunedin, Samuel Charles Phillips; Hokitika, Bartholomew Lloyd O'Brien; Invercargill, John Henry Bratby; Lyttelton, Matthew Michael Cleary; Napier, Francis Edward Severne; New Plymouth, Edward Rickerby; Wanganui, Robert T. Noble Beasley; Wellington, Patrick Samuel Garvey; Nelson, Thomas R. Pointon

DEPARTMENT OF LABOUR

Minister of Labour—Hon. W. P. Reeves
Secretary for Labour and Chief Inspector of Factories—E. Tregear
Chief Clerk—James Mackay

Record Clerk—V. L. Willeston
Cadet—F. W. T. Rowley
(There are over 200 Bureau Agencies in different parts of the colony.)

INSPECTORS OF FACTORIES.

Wellington—J. Mackay, J. Shanaghan; Christchurch—J. Lomas; Auckland—H. Ferguson; Dunedin—H. Maxwell; and 137 local Inspectors.

PUBLIC WORKS DEPARTMENT.

HEAD OFFICE.

Minister for Public Works—Hon. R. J. Seddon
Under-Secretary—H. J. H. Blow
Engineer-in-Chief—W. H. Hales
Resident Engineer (Head Office)—P. S. Hay, M.A., M.Inst.C.E.
Chief Clerk—J. A. McArthur
Accountant—G. J. Clapham
Land-purchase Officer—H. Thompson
Record Clerk—H. W. H. Millais
Clerks—W. D. Dumbell, L. F. Tegnér, H. R. Rae, J. Williams, N. Jacobs, E. Horneman, F. E. Banks
Chief Draughtsman—W. G. Rutherford
Architectural Draughtsman—J. Campbell
Draughtsmen—T. Perham, E. Jackson, W. Withers, W. G. Swan
Engineering Cadet—J. Meenan

DISTRICT OFFICES.

District Engineer—Dunedin, E. R. Ussher, M.Inst.C.E.
Resident Engineers—Auckland, C. R. Vickerman; Hunterville, W. A. Shain; Wellington, J. A. Wilson, jun.; Westport, T. H. Rawson; Greymouth, J. Thomson, B.E.; Hyde, G. L. Cook, M.Inst.C.E. In charge of North Island Main Trunk Railway survey, R. W. Holmes
Assistant Engineers—J. D. Louch, A. C. Koch, H. Macandrew, F. M. Hewson, J. J. Hay, M.A., W. H. Gavin, J. W. Richmond, J. S. Stewart
Engineering Cadets—J. H. Lewis, H. Dickson, J. E. W. McEnnis, F. W. Furkert, A. Jack
Clerks, Draughtsmen, &c.—W. Black, C. T. Rushbrook, C. Wood, J. Young, F. G. Ince, A. Biddell, W. W. Spotswood, T. Douglas, J. H. Denton, E. C. Farr, A. R. Stone, E. Waddell, P. S. Waldie

INSPECTION OF MACHINERY BRANCH.

Inspectors of Machinery and Engineer Surveyors of Steamers—Chief Inspector and Principal Engineer Surveyor, W. M. Mowatt; Auckland, W. J. Jobson, L. Blackwood; Wellington, H. A. McGregor, P. J. Carman; Christchurch, G. Croll; Dunedin, R. Duncan, A. Morrison
Clerk—R. P. Milne
Cadet—B. Anderson

RAILWAY DEPARTMENT.

Minister for Railways—Hon. A. J. Cadman
Under-Secretary—H. J. H. Blow
General Manager—T. Ronayne
Assistant General Manager—C. Hudson
Chief Clerk—T. W. Waite
Clerks—R. W. McVilly, C. Isherwood, E. J. Andrews, L. C. E. Hamann, J. E. Widdop, W. H. Gifford, W. S. W. McGowan, H. D. Dansey
Audit Inspectors—C. Wallnutt, D. Munro, C. L. Russell
Railway Accountant—A. C. Fife
Clerks—H. Davidson, G. G. Wilson, M. C. Rowe, J. H. Davies, S. P. Curtis, J. McLean, E. Davy, A. Morris, R. Allen, V. Jänisch, E. P. Brogan, W. B. Fisher, J. Firth, E. J. Fleming, E. R. Nicholson, R. J. Loe, F. W. Lash, A. H. Hunt, W. Bourke, W. H. Hales, W. E. Ahern
Stores Manager—G. Felton
Clerks—A. M. Heaton, R. E. Mackay, J. Webster, J. E. Hasloch, S. Alpe, H. W. Barbor, W. Bushill, E. J. Maguiness
District Managers—Whangarei, H. B. Dobbie; Kawakawa, J. D. Harris; Kaihu, T. H. Barstow; Auckland, A. Grant; Wanganui, H. Buxton; Napier, E. G. Pilcher; Wellington, T. E. Donne; Greymouth, D. T. McIntosh; Westport, T. A. Peterkin; Nelson, H. St. J. Christophers; Christchurch, W. H. Gaw; Dunedin, T. Arthur; Invercargill, S. F. Whitcombe; Picton, A. Duncan (Stationmaster in charge)
Chief Engineer for Working Railways—J. H. Lowe, M.Inst.C.E.
Assistant Engineer—F. W. MacLean
Land Officer—E. G. H. Mainwaring
Chief Draughtsman—G. A. Troup

Draughtsmen — J. A. Henderson, J. Besant, C. T. Jeffreys, T. McFarlane, F. C. Widdop

Clerks — W. P. Hicks, G. McCartney, W. S. Ridler, J. T. Ford, W. A. Mirams, H. Jessup, H. W. Rowden

Resident Engineers — Auckland, A. V. Macdonald; Napier–Taranaki, J. I. Lawson; Christchurch, James Burnett; Dunedin, J. Coom; Invercargill, C. H. Biss (Assistant Engineer)

Locomotive Superintendent—T. F. Rotheram

Clerks—R. Triggs, W. H. Butterworth, J. White, F. T. Murison, C. G. Edwards, W. B. Sinclair, J. Rumgay

Chief Draughtsman—G. A. Pearson

Draughtsmen -- R. Pye-Smith, E. E. Gillon

Locomotive Engineer—H. H. Jackson

Locomotive Managers—Auckland, J. H. Fox; Wanganui, A. L. Beattie

POST OFFICE AND TELEGRAPH DEPARTMENT.

General Post Office.

Postmaster-General and Commissioner of Electric Telegraphs—Hon. J. G. Ward

Secretary—W. Gray

Superintendent of Electric Lines—J. K. Logan

Assistant Secretary and Inspector—T. Rose

Controller of Money-orders and Savings-banks, and Accountant—G. Gray

Assistant Inspector of Post Offices—

Sub-Inspectors of Post Offices—D. Cumming, C. J. A. Tipping

Chief Clerk—D. Robertson

Clerks—W. R. Morris, E. V. Senn, F. V. Waters, H. Plimmer, J. C. Williamson, W. Beswick, G. Cenci, L. Ledger, V. J. Brogan, W. Callaghan, G. W. Moorhouse, W. Chegwidden, H. S. B. Miller, H. Huggins, G. V. Hudson, F. Perrin, H. D. Grocott, J. Brennan, H. Cornwall, R. J. Thompson, R. E. Hayes, D. A. Jenkins, E. Fitzsimons, H. N. McLeod, J. C Redmond, C. B. Harton, W. J. Drake, R. F. Smith, J. D. Avery, H. E. Duff, J. G. Roache, J. Coyle, F. W. Faber, W. H. Carter, J. J. Murray, P. Tyrrell, A. T. Markmann, E. Bermingham, C. Bermingham, S. Brock, W. Menzies, F. Menzies, E. Harris, B. Kenny, V. Johnston, M. A. McLeod

Electrician—W. C. Smythe

Mechanician—H. F. Smith

Assistant Mechanician—A. W. Macandrew

Storekeeper—J. Black

Assistant Storekeeper—C. B. Mann

Cadet—C. Nicholls

Circulation Branch (Post Office) — J. Hoggard, Chief Clerk

Inspectors of Telegraphs.

Auckland—E. H. Bold

Christchurch—W. G. Meddings

Dunedin—J. Orchiston

Sub-Inspector of Telegraphs.

Nelson—J. W. Gannaway

Chief Postmasters.

Auckland—S. B. Biss

*Thames—J. E. Coney

*Gisborne—W. W. Beswick

Napier—S. J. Jago

*New Plymouth—F. D. Holdsworth

*Wanganui—J. F. McBeth

*Blenheim—J. G. Ballard

*Nelson—H. Calders

*Westport—J. H. Sheath

*Greymouth—C. J. Berry

*Hokitika—A. E. Cresswell

Christchurch—R. Kirton

*Timaru—R. J. Goodman

*Oamaru—J. A. Hutton

Dunedin—E. Cook

*Invercargill—J. W. Wilkin

Officers in Charge of Telegraph Offices.

Auckland—W. S. Furby

Napier—H. W. Harrington

Wellington—C. C. Robertson

Christchurch—J. W. Mason

Dunedin—A. D. Lubecki

DEPARTMENT OF TRADE AND CUSTOMS.

Commissioner of Trade and Customs—Hon. J. G. Ward

Secretary and Inspector of Customs and Secretary of Marine—W. T. Glasgow

Chief Clerk—T. Larchin

Clerks, Customs—H. J. Marsh, G. Craig.

Audit—H. W. Brewer, H. Crowther (Writer)

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* These are combined post- and telegraph-offices.

Collectors of Customs.

Auckland—A. Rose
Poverty Bay—E. Pasley
New Plymouth—C. S. Nixon
Napier—E. R. C. Bowen
Wellington—D. McKellar
Wanganui—A. Elliott
Wairau—A. Carter
Nelson—W. Heaps
Westport—J. Mills
Greymouth—A. McDowell
Hokitika—E. Chilman
Lyttelton and Christchurch—E. Patten
Timaru—A. Hart
Oamaru—R. Thompson
Dunedin—C. W. S. Chamberlain
Invercargill and Bluff Harbour—D. Johnston, jun.

Officers in Charge of Ports, and Coastwaiters.

Thames—T. C. Bayldon, Coastwaiter
Russell—H. Stephenson, Coastwaiter
Tauranga—J. Bull, Officer in Charge
Whangaroa—A. G. Ratcliffe, Coastwaiter
Whangarei—J. Munro, Coastwaiter
Mongonui—A. D. Clemett, Officer in Charge
Hokianga—G. Martin, Coastwaiter
Kaipara—J. C. Smith, Officer in Charge
Waitara—J. Cameron, Coastwaiter
Foxton—J. B. Imrie, Officer in Charge
Patea—J. W. Glenny, Officer in Charge
Picton—J. B. Gudgeon, Officer in Charge
Chatham Islands—F. J. W. Gascoyne, Officer in Charge

MARINE DEPARTMENT.

Minister of Marine—Hon. J. G. Ward
Secretary—W. T. Glasgow
Chief Clerk—G. Allport
Clerk—J. J. D. Grix
Cadet—G. Sinclair
Nautical Adviser and Chief Examiner of Masters and Mates—G. Allman
Examiners of Masters and Mates—R. A. Edwin, Com. R.N.
Weather Reporter—R. A. Edwin, Com. R.N.
Examiners of Masters and Mates, Auckland—T. C. Tilly and J. Robertson
Examiner of Masters and Mates, Lyttelton—
Examiner of Masters and Mates, Dunedin—W. J. Grey
Engineer Surveyors and Examiners of Engineers, Auckland—W. J. Jobson and L. Blackwood
Engineer Surveyors and Examiners of Engineers, Wellington—W. M. Mowatt (Principal), H. A. McGregor, and P. Carman
Engineer Surveyor and Examiner of Engineers, Christchurch—G. Croll
Engineer Surveyors and Examiners of Engineers, Dunedin—R. Duncan and A. Morrison
Master of s.s. "Hinemoa"—J. Fairchild

Inspectors of Sea Fisheries.

Russell—H. Stephenson
Whangarei—J. Munro
Wellington—F. Moorhouse
Hokitika—J. Duncan

Harbourmasters.*

Collingwood—J. E. Fletcher
Foxton—A. Seabury
Hokianga—G. Martin
Russell—H. Stephenson
Kaipara—J. Christy Smith
Manukau—J. Robertson
Nelson—J. P. Low
Okarito—G. Thomson
Picton—A. Duncan
Port Robinson—J. Sinclair
Waitapu—S. G. Robinson

STAMP DEPARTMENT.

Commissioner of Stamp Duties—Hon. W. P. Reeves
Secretary for Stamps—C. A. St. G. Hickson
Chief Clerk and Accountant—H. O. Williams
Custodian and Issuer of Stamps—W. H. Shore
Record and Receiving Clerk—J. P. Murphy
Clerk—J. Murray
Chief Stamper—C. Howe

Deputy Commissioners of Stamps.

Auckland—Thomas Hall
Gisborne—W. W. Beswick
Taranaki—W. Stuart
Hawke's Bay—G. G. Bridges
Wellington—C. A. St. G. Hickson
Wanganui—J. F. McBeth
Nelson—W. W. de Castro
Marlborough—A. V. Sturtevant
Canterbury—E. Denham
Timaru—R. J. Goodman
Otago—P. C. Corliss
Southland—F. G. Morgan
Westland—A. H. King

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* The more important harbours are controlled by local Boards, not by the Marine Department. (See "Ports and Harbours.")

LAND TRANSFER DEPARTMENT AND DEEDS REGISTRY.

Registrar-General of Land and Deeds—G. B. Davy

Secretary, Land and Deeds—C. A. St. G. Hickson

DISTRICT LAND REGISTRARS AND REGISTRARS OF DEEDS.

Auckland—E. Bamford
Taranaki—W. Stuart
Wellington—G. B. Davy
Hawke's Bay—G. G. Bridges
Nelson—H. W. Robinson
Marlborough—J. Allen
Canterbury—J. M. Batham and E. Denham
Otago—H. Turton
Southland—F. G. Morgan
Westland—A. H. King

EXAMINERS OF TITLES.

Auckland—Thomas Hall
Taranaki—W. Stuart
Wellington—G. B. Davy, H. Howorth
Hawke's Bay—G. G. Bridges
Nelson—H. W. Robinson
Marlborough—G. B. Davy
Canterbury—J. M. Batham
Otago—H. Turton
Southland—F. G. Morgan
Westland—A. H. King

REGISTRAR OF JOINT-STOCK COMPANIES.

C. A. St. G. Hickson

ASSISTANT REGISTRARS OF JOINT-STOCK COMPANIES.

Auckland—Thomas Hall
Taranaki—W. Stuart
Hawke's Bay—G. G. Bridges
Wellington—H. O. Williams
Nelson—W. W. de Castro
Marlborough—A. V. Sturtevant
Canterbury—E. Denham
Otago—P. C. Corliss
Southland—F. G. Morgan
Westland—A. H. King

EDUCATION DEPARTMENT.

Minister of Education (administering also Native schools, industrial schools, and the institution for deaf-mutes)—Hon. W. P. Reeves

Secretary for Education and Inspector-General of Schools—Rev. W. J. Habens, B.A.

Chief Clerk—Sir E. O. Gibbes, Bart.

Clerks—F. K. de Castro, H. B. Kirk, M.A., R. H. Pope, F. L. Severne, E. C. Banks, F. D. Thomson

Organizing Inspector of Native Schools—James H. Pope. Assistant Inspector, H. B. Kirk, M.A.

EDUCATION BOARDS.

Auckland—V. E. Rice, Secretary
Taranaki—E. Veale, Secretary
Wanganui—A. A. Browne, Secretary
Wellington—A. Dorset, Secretary
Hawke's Bay—G. T. Fannin, Secretary
Marlborough—J. Smith, Secretary
Nelson—S. Ellis, Secretary
Grey—W. Riemenschneider, Secretary
Westland—A. J. Morton, B.A., Secretary
Canterbury North—J. V. Colborne-Veel, M.A., Secretary
Canterbury South—J. H. Bamfield, Secretary
Otago—P. G. Pryde, Secretary
Southland—J. Neill, Secretary

SCHOOL COMMISSIONERS

(*Administrators of Education Reserves*).

Auckland—H. N. Garland, Secretary
Taranaki—E. Veale, Secretary
Wellington—W. H. Warren, Secretary
Hawke's Bay—E. P. A. Platford, Secretary
Marlborough—J. Smith, Secretary
Nelson—A. T. Jones, Secretary
Westland—A. J. Morton, Secretary
Canterbury—H. H. Pitman, Steward of Reserves
Otago—C. Macandrew, Secretary

INDUSTRIAL SCHOOLS.

Auckland Industrial School—Miss S. E. Jackson, Manager
St. Mary's Industrial School, Ponsonby—Rev. G. M. Lenihan, Manager
St. Joseph's Industrial School, Wellington—Rev. T. G. Dawson, Manager
St. Mary's Industrial School, Nelson—Rev. W. J. Mahoney, Manager
Burnham Industrial School (Canterbury)—T. Palethorpe, Manager
Caversham Industrial School (Otago)—G. M. Burlinson, Manager

INSTITUTION FOR DEAF-MUTES, SUMNER.

Director—G. Van Asch
Steward—H. Buttle

LUNATIC ASYLUMS.

Inspector—Duncan MacGregor, M.A., M.B., C.M.
Deputy Inspector—Mrs. Grace Neil
Medical Superintendent, Auckland Asylum—Gray Hassell, M D.
Medical Superintendent, Christchurch Asylum—E. G. Levinge, M.B.
Medical Superintendent, Wellington Asylum—E. E. Fooks, M.B.
Medical Superintendent, Porirua Asylum—Thomas Burns, L.R.C.P., &c.
Medical Superintendent, Seacliff Asylum—F. Truby King, M.B.
Superintendent, Hokitika Asylum—H. Gribben
Superintendent, Nelson Asylum—J. Morrison
Ashburn Hall, Waikari (private asylum)—Joint proprietors, Dr. Alexander and J. Hume

MINES DEPARTMENT.

Chief Office.

Minister of Mines—Hon. A. J. Cadman
Under-Secretary for Mines—H. J. H. Eliott
Inspecting Engineer—H. A. Gordon
Chief Clerk—T. H. Hamer
Clerks—T. S. M. Cowie, H. E. Radcliffe
Analyst—W. Skey
Assistant Geologist—Alexander McKay, F.G.S.
Draughtsman—C. H. Pierard

Inspectors of Mines.

Thames and Auckland Districts—G. Wilson; Canterbury, Dunedin, and Southland Districts—J. Gow; West Coast Districts, N. D. Cochrane

Managers of Water-races.

Waimea-Kumara—A. Aitken
Mount Ida—R. Murray

Schools of Mines.

Lecturers and Instructors: Thames—James Park; Assistant, F. B. Allen. Reefton—R. M. Aitken

Board of Examiners under "The Coal-mines Act, 1891."

The Director of the Geological Survey of New Zealand; the Surveyor-General; the Inspecting Engineer of Mines; W. M. Mowatt, Chief Inspector of Machinery, Wellington; James Bishop, of Brunnerton; Thomas Brown, of Denniston; and William Shore, of Kaitangata

Board of Examiners under "The Mining Act, 1891."

Same official members as above Board, with the following private members: Thomas Dunlop, of Thames; Patrick Quirk Caples, of Reefton; George Casley, of Reefton

The Director of the Geological Survey of New Zealand is Chairman of both Boards.

Geological Survey, Museum, and Observatories.

Minister in Charge—The Hon. Minister of Mines
Director—Sir J. Hector, K.C.M.G., M.D., F.R.S.
Clerk, Curator, and Meteorological Observer for Wellington—R. B. Gore
Astronomical Observer—T. King
Meteorological Observer, Auckland—T. F. Cheeseman, F.L.S.
Meteorological Observer, Dunedin—H. Skey
Meteorological Observer, New Plymouth—E. Veale
Meteorological Observer, Hokitika—A. D. Macfarlane

New Zealand Institute.

Manager—Sir J. Hector, K.C.M.G., M.D., F.R.S.
Hon. Treasurer—W. T. L. Travers, F.L.S.
Secretary—R. B. Gore

DEFENCE DEPARTMENT.

Minister of Defence—Hon. R. J. Seddon
Military Adviser and Inspector of the N.Z. Forces—Colonel F. J. Fox, N.Z.M., late Major, R.A.
Under-Secretary—Major Sir A. P. Douglas, Bart.
Chief Clerk—H. Stratton Royle
Clerk—T. F. Grey

Harbour Defence.

Chief Engineer—W. H. Hales

New Zealand Permanent Militia.

Artillery.

Major F. Y. Goring
Major W. B. Messenger
Major Sir A. P. Douglas, Bart.
Captain H. C. Morrison

Captain J. Coleman
Lieutenant J. E. Hume

Inspector of Submarine Mining Establishment.

Captain J. Falconer

Torpedo Corps.

Captain J. Falconer
Captain W. T. Powell

Quartermaster, Permanent Militia.

Captain S. C. Anderson

Surgeon, Permanent Militia (Wellington).

John Teare, M.B.

Surgeon, Permanent Militia (Auckland).

John Wilkins, M.R.C.S.E.

Honorary Surgeon, Permanent Militia.

Patrick J. O'Neill O'Carroll

Honorary Chaplain, Lyttelton Detachment Permanent Militia.

The Rev. E. E. Chambers

Honorary Chaplain, Wellington Detachment Permanent Militia.

The Rev. W. C. Waters, M.A.

Officers Commanding Militia and Volunteer Districts, and Adjutants.

Auckland — Lieut.-Colonel Forster Yelverton Goring, N.Z.M. Acting Adjutant: Lieut. John Grant, N.Z. Vols.
Wellington — Lieut - Colonel Stuart Newall, N.Z.M.
Canterbury—Lieut.-Colonel Henry Gordon, N.Z.M., late H.M. 44th Foot
Otago—Lieut.-Colonel William Holden Webb, N.Z.M., late H.M. 109th Foot
Nelson — Lieut. - Colonel Albert Pitt, N.Z.M. Adjutant: Wm. S. Littlejohn (Captain, Nelson College Cadets)

NEW ZEALAND POLICE FORCE.

Head Office.

Commissioner — Lieutenant - Colonel A. Hume
Clerks—John Evans, John Tasker

Police Department.

Inspectors, 1st Class—Thomas Broham, John Bell Thomson, Peter Pender, William Stone Pardy
Inspectors, 2nd Class—John Emerson, James Hickson, Francis McGovern

DEPARTMENT OF LANDS AND SURVEY.

Minister of Lands and Immigration—Hon. J. McKenzie
Secretary for Crown Lands and Surveyor-General—S. Percy Smith
Under-Secretary for Crown Lands and Superintending Surveyor — Alexander Barron

HEAD OFFICE.

Chief Draughtsman—F. W. Flanagan
Road Surveyors—C. W. Hursthouse (Te Kuiti), G. T. Murray (Wanganui), R. H. Reaney (Pahiatua)
Auditor of Land Revenue — C. O'H. Smith
Chief Clerk—W. S. Short
Chief Accountant—H. J. Knowles
Superintendent of Village-settlements—J. E. March
Overseer of Works, Rotorua Sanatorium—C. Malfroy
Caretaker, Hanmer Springs—J. Rogers

AUCKLAND DISTRICT.

Chief Surveyor and Commissioner of Crown Lands—G. Mueller
District Surveyors—L. Cussen, J. Baber, jun., G. A. Martin
Road Surveyor—A. B. Wright
Chief Draughtsman—W. C. Kensington
Receiver of Land Revenue—T. M. Taylor

HAWKE'S BAY DISTRICT.

Chief Surveyor and Commissioner of Crown Lands—T. Humphries
District Surveyors—E. C. Gold-Smith, J. Hay
Chief Draughtsman—F. Simpson
Receiver of Land Revenue—F. Bull

TARANAKI DISTRICT.

Chief Surveyor and Commissioner of Crown Lands—J. Strauchon
District Surveyor—H. M. Skeet
Road Surveyor—G. F. Robinson
Chief Draughtsman—F. E. Clarke
Receiver of Land Revenue—G. P. Doile

WELLINGTON DISTRICT.

Assistant Surveyor - General and Commissioner of Crown Lands—J. H. Baker
District Surveyors—L. Smith, W. D. B. Murray, J. D. Climie, F. A. Thompson
Chief Draughtsman—J. Mackenzie
Road Surveyor—A. C. Turner
Receiver of Land Revenue — W. G. Runcie

NELSON DISTRICT.

Chief Surveyor and Commissioner of Crown Lands—J. S. Browning
District Surveyors—J. A. Montgomerie, F. S. Smith, J. Snodgrass, R. T. Sadd
Chief Draughtsman—H. Trent
Receiver of Land Revenue—J. T. Catley

MARLBOROUGH DISTRICT.

Chief Surveyor and Commissioner of Crown Lands—S. Weetman
Chief Draughtsman and Receiver of Land Revenue—G. Robinson

WESTLAND DISTRICT.

Chief Surveyor and Commissioner of Crown Lands—David Barron
District Surveyor—W. G. Murray
Road Surveyor—F. B. Wither
Chief Draughtsman and Receiver of Land Revenue—G. J. Roberts

CANTERBURY DISTRICT.

Chief Surveyor and Commissioner of Crown Lands—J. W. A. Marchant
District Surveyors—T. N. Broderick, G. H. M. McClure
Chief Draughtsman—C. B. Shanks
Receiver of Land Revenue—A. A. McNab

OTAGO DISTRICT.

Commissioner of Crown Lands — J. P. Maitland
Chief Surveyor—C. W. Adams
District Surveyors—J. Langmuir, E. H. Wilmot
Chief Draughtsman—P. Treseder
Receiver of Land Revenue—G. A. Reade

SOUTHLAND DISTRICT.

Chief Surveyor and Commissioner of Crown Lands—G. W. Williams
District Surveyor—John Hay
Chief Draughtsman—J. G. Clare
Receiver of Land Revenue—H. L. Welch

NATIVE LAND-PURCHASE BRANCH.

Land-purchase Officers — P. Sheridan (Officer in Charge), G. Mair, G. T. Wilkinson

MEMBERS OF WASTE LANDS BOARDS.

Auckland—G. Mueller, R. Thompson, B. Harris, D. Lundon, L. J. Bagnall
Hawke's Bay—T. Humphries, C. Hall, T. Hyde, R. R. Groom, G. Mathewson
Taranaki—J. Strauchon, T. Kelly, C. K. Stock, J. Heslop, R. B. Roy
Wellington — J. H. Baker, W. A. Fitzherbert, A. W. Hogg, T. W. Fisher, F. Pirani
Marlborough—S. Weetman, A. P. Seymour, C. H. Mills, J. Redwood, J. A. Parsons
Nelson—J. S. Browning, J. Kerr, D. Bate, F. Hamilton
Westland — D. Barron, J. Bevan, L. Northcroft, A. Matheson
Canterbury—J. W. A. Marchant, W. C. Walker, A. C. Pringle, R. Meredith, D. McMillan
Otago—J. P. Maitland, A. McKerrow, H. Clark, J. Duncan, W. Dallas
Southland—G. W. Williams, C. Cowan, A. Kinross, J. McIntyre

LAND FOR SETTLEMENTS.

Land Purchase Inspector — James McKerrow, F.A.S.

DEPARTMENT OF AGRICULTURE.

CHIEF OFFICE.

Minister in Charge—Hon. J. McKenzie
Secretary of Agriculture and Chief Inspector of Stock—John D. Ritchie
Assistant Chief Inspector of Stock—W. A. Scaife
Chief Clerk—Richard Evatt
Clerk and Biologist—T. W. Kirk, F.L.S.
Veterinary Surgeon — J. A. Gilruth, M.R.C.V.S.
Produce Commissioner, London—
Chief Dairy Expert—J. B. MacEwan
Dairy Instructors—John Sawers, S. M. Robbins, B. Wayte
Pomologists — W. J. Palmer, J. C. Blackmore, Joseph Mayo

INSPECTORS OF STOCK.

Auckland — E. Clifton (in charge), F. Schaw, Auckland; G. S. Cooke, Whangarei; D. Ross, Hamilton
Napier—J. Drummond (in charge), H. Oldham, Napier; C. Thomson, Gisborne; J. Harvey, Woodville
Wairarapa — W. Miller, Masterton; Wellington, W. G. Rees, Wellington
West Coast—Richard Hull (in charge), Wanganui; A. Monro, Hawera; A. K. Blundell, Palmerston North
Nelson—H. M. Campbell, Nelson (in charge); F. E. Orbell, Foxhill
Marlborough—John Moore, Blenheim
Westland—V. A. Huddleston, Hokitika
Canterbury-Kaikoura—R. F. Holderness (in charge), E. A. Dowden, Christchurch; C. A. Cunningham, Rangiora; J. C. Huddleston, Rotherham; Blair Fullarton, Ashburton

South Canterbury—H. S. Thomson (in charge), Timaru; J. W. Deem, Fairlie; R. H. Hassall, Kurow

Otago—J. E. Thomson, Dunedin; J. S. Nichol, Outram; J. C. Miller, Oamaru; J. L. Bruce, Palmerston; A. Ironside, Clyde; D. Kerr, Naseby; C. C. Empson, Lawrence; H. G. J. Hull, Balclutha; E. A. Field, Gore; H. T. Turner, Invercargill; J. W. Raymond, Bluff

GOVERNMENT LIFE INSURANCE DEPARTMENT.

Commissioner—J. H. Richardson
Assistant Commissioner—D. M. Luckie
Actuary—Morris Fox
Secretary—W. B. Hudson
Chief Medical Officer—T. Cahill, M.D.
Accountant—G. W. Barltrop
Assistant Actuary—G. Leslie
Chief Clerk—R. C. Niven
Office Examiner—G. A. Kennedy
Clerks—J. C. Young, J. W. Kinniburgh, D. J. McG. McKenzie, W. S. Smith, R. V. Blacklock, A. H. Hamerton, F. B. Bolt, G. G. Schwartz, C. E. Galwey, P. Muter, H. Spackman, T. L. Barker, A. L. B. Jordan, R. T. Smith, J. A. Thomson, F. K. Kelling, H. S. Manning, A. de Castro, F. M. Leckie, C. W. Palmer, J. B. Young, A. Avery, R. P. Hood, G. C. Fache, S. P. Hawthorne, W. H. Woon
Chief Messenger—W. Archer

Auckland Agency.

District Manager—W. J. Speight
Chief Clerk—J. K. Blenkhorn
Clerk—J. B. Watkis

Napier Agency.

Resident Agent—J. H. Dean

Wanganui Agency.

Resident Agent—J. Fairburn

Wellington Agency.

District Manager—G. Robertson
Clerks—G. Crichton, W. C. Marchant

Nelson Agency.

Resident Agent—A. P. Burnes

Blenheim Agency.

Agency Clerk—C. H. Ralph

Greymouth Agency.

Resident Agent—A. E. Allison

Christchurch Agency.

District Manager—J. C. Prudhoe
Chief Clerk—J. W. H. Wood
Clerk—H. Rose

Timaru Agency.

Agency Clerk—S. T. Wicksteed

Oamaru Agency.

Resident Agent—O. H. Pinel

Dunedin Agency.

District Manager—R. S. McGowan
Chief Clerk—M. J. Heywood
Clerk—G. A. N. Campbell

Invercargill Agency.

Agency Clerk—J. Findlay

PUBLIC TRUST OFFICE.

Public Trustee—J. K. Warburton
Solicitor—F. J. Wilson
Chief Clerk—A. A. Duncan
Accountant—T. S. Ronaldson
Clerk in Charge of Wills, Trusts, &c.—T. Stephens
Examiner—M. C. Barnett
Clerks—M. Townsend, P. Fair, P. Hervey, E. C. Reeves, J. McLellan, T. D. Kendall, W. A. Fordham, H. Oswin, A. Purdie, G. A. Smyth, A. J. Cross, E. G. Hyde, M. E. Harrap, S. Dimant, J. Skerrett, E. A. Smythe, J. Allen, W. Barr, E. O. Hales, C. Morris, S. W. Smith, J. B. Jack, K. Brown
Messenger—H. Redmond
District Agent, Christchurch—J. J. M. Hamilton
District Agent, Auckland—E. F. Warren
District Agent, Dunedin—F. H. Morice
District Agent, Greymouth—J. C. Matheson
District Agent, Napier—E. P. Watkis
West Coast Settlement Reserves Agent—Wilfred Rennell
Clerks—C. Zachariah, T. R. Saywell

ADVANCES TO SETTLERS. OFFICE.

Superintendent—J. K. Warburton
Chief Valuers—Auckland, W. Duncan; Wellington, T. K. Macdonald; Christchurch, J. W. A. Marchant; Invercargill, H. Carswell
Clerks, Head Office—H. Lamb, E. McFadden, W. Waddel, T. C. Somers, H. O'Rorke, E. Holloway, J. T. Bolt, W. Gilmore, S. Saunders, W. Reid, L. A. Treadwell, W. Garrett, H. Masters, C. A. Goldsmith
Clerks at Agencies — Messrs. Millar, Smith, Walker, Powell.

ECCLESIASTICAL.

There is no State Church in the colony, nor is State aid given to any form of religion. Government in the early days set aside certain lands as endowments for various religious bodies, but nothing of the kind has been done for many years past.

CHURCH OF THE PROVINCE OF NEW ZEALAND, COMMONLY CALLED THE "CHURCH OF ENGLAND."

Bishops.

The Most Rev. William Garden Cowie, D.D., Auckland; consecrated 1869 (Primate).

The Right Rev. William Leonard Williams, B.A., Waiapu; consecrated 1895.

The Right Rev. Frederic Wallis, D.D., Wellington; consecrated 1895.

The Right Rev. Charles Oliver Mules, M.A., Nelson; consecrated 1892.

The Right Rev. Churchill Julius, D.D., Christchurch; consecrated 1890.

The Right Rev. Samuel Tarratt Nevill, D.D., Dunedin; consecrated 1871.

The Right Rev. Cecil Wilson, M.A., Melanesia; consecrated 1894.

ROMAN CATHOLIC CHURCH.

Archbishop.

The Most Rev. Francis Redwood, S.M., D.D., Archbishop and Metropolitan, Wellington; consecrated 1874.

Bishops.

The Right Rev. John Edmund Luck, O.S.B., D.D., Auckland; consecrated 1882.

The Right Rev. John Joseph Grimes, S.M., D.D., Christchurch; consecrated 1887.

Bishopric of Dunedin vacant (June, 1895).

ANNUAL MEETINGS AND OFFICERS.

The principal present heads or officers of the various churches, and the places and times of holding the annual or periodical assemblies or meetings, are as follow:—

Church of England.—For Church purposes, the colony is divided into six dioceses—viz., Auckland, Waiapu, Wellington, Nelson, Christchurch, and Dunedin. The General Synod meets every third year in one or other of the dioceses.—President, the Bishop of Auckland, Primate; Secretary, Rev. J. P. Kempthorne, Nelson; Lay Secretary, James Allen, Esq., B.A., M.H.R., Dunedin. The Diocesan Synods meet once a year, under the presidency of the

Bishop of the diocese. The next General Synod will be held in Christchurch, in February, 1898.

Roman Catholic Church.—The diocese of Wellington, established in 1848, was in 1887 created the metropolitan see. There are three suffragan dioceses—Auckland, Christchurch, and Dunedin. A Retreat is held annually in each of the four dioceses.

Presbyterian Church of New Zealand.—The Assembly meets annually, in February, at Auckland, Wellington, and Christchurch, in succession. Moderator, the Very Rev. Ralph Joshua Allsworth; Clerk and Treasurer, Rev. David Sidey, D.D., Napier.

Presbyterian Church of Otago and Southland.—The Synod meets annually in October at Dunedin. Moderator, Rev. R. R. M. Sutherland, Kaikorai; Clerk, Rev. W. Bannerman, Roslyn, Dunedin; Church Factor, Mr. Edmund Smith, High Street, Dunedin. Theological Professors, Rev. John Dunlop, M.A., D.D., and Rev. Michael Watt, M.A., D.D.

Wesleyan Methodist Church.—The annual Conference meets on or about the 1st March, the exact date being determined by the President, who holds office for one year. Each Conference determines where the next one shall assemble. President (1895–96), Rev. J. H. Simmonds, Principal of Wesley College, Three Kings, Auckland; Secretary, Rev. D. J. Murray, Waimate, Canterbury. The next Conference is to meet in the Pitt Street Church, Auckland.

Baptist Union of New Zealand.—President, Rev. W. R. Woolley, Thames; Secretary, Rev. A. H. Collins, Auckland. The Union comprises 31 churches, 3,066 members, 4,937 scholars in the Sunday schools, with 569 teachers. There are also 104 local preachers, and 28 preaching-stations. This religious body has a newspaper of its own—the *New Zealand Baptist*—published in Christchurch.

Congregational Union of New Zealand.—The annual meetings are held during the second week of February, at such place as may be decided on by vote of the Council. Chairman for 1895, Rev. B. L. Thomas, Auckland; Chairman Elect, Rev. W. M. Fell, Ravensbourne, Otago; Secretary, Mr. J. Bowden, Auckland; Treasurer, Mr. W. H. Lyon, Auckland; Registrar, Rev. C. H. Bradbury, Wellington; Head Office, 314, Victoria Arcade, Auckland. In 1896 the meeting of the Council will be held at a place to be fixed by the Committee. The Executive Committee of the Union meets in Auckland on the second Tuesday of each month.

Primitive Methodists.—A Conference takes place every January. The next is to be held in Timaru, commencing 10th January, 1896. The Executive Committee of the Church sits in Auckland. The Conference officials for the present year are: President, Rev. William Laycock, Dunedin; Secretary, Rev. Thomas H. Lyon, Waddington, Canterbury; Secretary of Executive Committee, Mr. D. Goldie, Auckland.

United Methodist Free Churches.—The Assembly meets annually in February, in Canterbury, Auckland, Wellington, or Hawke's Bay.

For 1895 the President is the Rev. J. J. Pendray, Waipawa, and the Secretary Mr. J. A. Flesher, Christchurch.

Hebrews.—Ministers, Rev. S. A. Goldstein, Auckland; Rev. Louis J. Harrison, Dunedin; Rev. H. van Staveren, Wellington; Mr. Alexander Singer, Hokitika. Annual meetings of the general Congregations are held at these places on the third Sunday in Elul (about the end of August).

Bible Christians.—A District Meeting of the Connexion is held annually. President, Rev. B. H. Ginger, Addington; Connexional Representative and Treasurer, Rev. J. Orchard, Christchurch; Trust Secretary, Rev. J. G. W. Ellis, Templeton; School and Temperance Secretary, Rev. F. Quintrell, Palmerston North; Editor of Magazine, Rev. W. Grigg, Belfast; Publisher, Rev. B. H. Ginger.

Religious Denominations, Churches and Chapels, Officiating Ministers, etc.

The following shows the number of persons (exclusive of Maoris) belonging to the different religious denominations in New Zealand, and the number of churches and chapels, according to the census of April, 1891; also, the number of officiating ministers under "The Marriage Act, 1880," on the 15th June, 1895:—

Religious Denominations.	Persons.	Churches and Chapels.	Officiating Ministers
Episcopalians—			
Church of England, and Episcopalians not otherwise defined	250,945	345	281
Protestants (undescribed)	2,386	..	..
Presbyterians—			
Church of Scotland, Free Church of Scotland, Free Presbyterians, Presbyterian Church of New Zealand, Presbyterian Church of Otago and Southland, and Presbyterians otherwise defined	141,477	246	183
Methodists—			
Wesleyan Methodists	53,061	213	119
Methodists (undefined)	2,071	..	..
Primitive Methodists	5,220	41	30
United Methodist Free Churches, Free Methodists, United Methodists	1,905	18	14
Bible Christians	1,069	9	10
Others	89	1	..
Baptists	14,825	32	20
Congregational Independents	6,685	21	22
Lutherans, German Protestants	5,616	13	12
Unitarians	308	..	..
Society of Friends	315	..	..
Other Protestants—			
Church of Christ (including Christian, Church of Christ, Christian Disciples, Disciples of Christ, Disciples)	5,241	15	10

Religious Denominations—*continued*.	Persons.	Churches and Chapels.	Officiating Ministers.
Other Protestants—*continued*.			
Brethren (including Brethren, Christian Brethren, Exclusive Brethren, Open Brethren, Plymouth Brethren)	3,537	3	1
Believers in Christ	193	..	..
Evangelists (including Evangelical Union, Evangelical Church, Evangelical Christians, Evangelical Brethren)	93	..	..
Nonconformists	77	..	..
Salvation Army	9,383	34	8
Christadelphians	700	..	..
Swedenborgians (including New Church, New Jerusalem Church)	178	..	1
Seventh-day Adventists	415	1	2
Students of Truth	325	..	1
Other Protestants (variously returned)	536*	..	4
Catholics—			
Roman Catholics	85,856	181	139
Catholics (undefined)	1,416	..	..
Greek Church	56	..	..
Catholic Apostolic	150	1	1
Other sects—			
Hebrews	1,463	5	6
Mormons, Latter-day Saints	206	..	..
Spiritualists	339	..	..
Buddhists, Pagans, Confucians	3,928	..	..
Others (variously returned)	154	..	..
No denomination—			
Freethinkers	4,475	..	..
Agnostic	322	..	..
Deists, Theists	51	..	..
Doubtful	405	..	..
No denomination (variously returned)	2,999†	18	..
No religion	1,558‡	..	..
Unspecified	1,288	..	..
Object to state	15,342	..	..
Totals	626,658	1,197§	864

CHURCHES, CHAPELS, SCHOOLHOUSES, ETC.

The following return shows the number of churches and chapels, schoolhouses, and other buildings used for public worship by the different religious denominations, in April, 1891; also the number of persons for whom there was accommodation, and the number usually attending, in each provincial district:—

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* Including 42 Dissenters; 55 Christian Israelites.

† Including 2,326 of No denomination, so described.

‡ Including 1,269 of No religion, so described; 123 Atheists; 65 Secularists.

§ In addition to the number of churches and chapels here given, there are about 400 schoolhouses, dwellings, or public buildings used for public worship, besides 20 buildings open to more than one Protestant denomination.

Provincial Districts.	Churches and Chapels.	School-houses used for Public Worship.	Dwellings or Public Buildings used for Public Worship.	Number of Persons	
				For whom Accommodation.	Attending Services.
Auckland	288	68	43	66,167	37,650
Taranaki	46	17	11	8,472	5,322
Hawke's Bay	58	8	6	11,274	7,064
Wellington	178	18	19	40,192	25,631
Marlborough	30	1	..	5,310	3,335
Nelson	76	6	10	15,030	8,879
Westland	33	2	3	6,705	4,445
Canterbury	256	33	19	60,755	41,771
Otago	232	88	50	64,209	42,958
Totals ..	1,197	241	161	278,114	177,055

JUDICIAL.

The Minister of Justice is charged with all matters relating to the Supreme, District, Magistrates', and Wardens' Courts, Crown Law Office, Coroners, patents, designs, and trade-marks, bankruptcy, criminal prosecutions in the higher Courts, Justices of the Peace, Licensing Committees, and prisons. The Supreme Court is presided over by a Chief Justice and four Puisne Judges. The Chief Justice and one Puisne Judge reside in Wellington, one Judge resides at Auckland, one at Christchurch, and one at Dunedin. They all go on circuit periodically within their districts. Circuit sittings of the Supreme Court are held at fourteen places. There are four District Court Judges, holding Courts at seventeen towns. At nearly every town in which sittings of the Supreme or District Courts are held there is a Crown Prosecutor, paid by fees, and a Sheriff. In the District Courts the Crown Prosecutor exercises the function of a Grand Jury.

The Magistrates' Courts are presided over by thirty Stipendiary Magistrates, and Courts are held daily in the principal centres, and at convenient times in the smaller towns. The jurisdiction of these Courts may be "ordinary" (which includes, practically speaking, all claims not exceeding £100 in value, except claims for damages for false imprisonment or illegal arrest, malicious prosecution, libel, slander, seduction, or breach of promiss of marriage); "extended," under which money-claims to an amount not exceeding £200 may be entertained; and "special," which, while including all the powers of the "extended" jurisdiction, enables the Court to deal also with partnerships, injunctions, and other equity suits. At present twenty-seven of the Stipendiary Magistrates exercise the "extended" jurisdiction, but none the "special." When, however, owing to increase of settlement, or pressure of business in the Supreme Court, necessity arises, the power to exercise either the extended or special jurisdiction can be conferred by Order in Council on any Court. The Magistrates exercising the special jurisdiction must be barristers or solicitors.

The procedure of the Courts is remarkably simple, no pleadings being required beyond a statement by the plaintiff sufficient to inform the defendant of the nature and extent of the claim. Due provision is made for counter-claims, and the joinder at any stage of the proceedings of all necessary parties, so that all questions arising in connection with the subject-matter before the Court may be finally dealt with at once. Appeal to the Supreme Court is allowed on points of law, and of law only, in cases where not more than £50 is concerned, and on points of either law or fact in cases above that amount. Generally, the procedure is so simple and elastic that in the majority of cases heard it is not necessary to retain the services of a professional man, but, where solicitors are employed, the Court in its judgment settles the costs to be paid according to a prescribed scale. In places where there is not a Magistrate's Court Justices of the Peace have power to hold a Court and deal with claims not exceeding £20 in value, giving judgment "according to equity and good conscience."

In criminal cases the Supreme or District Court may reserve any question of law for the Court of Appeal; and, if the Court refuse to reserve a question, the Attorney-General may give leave to move the Court of Appeal for leave to appeal.

The Court may give leave to any person convicted before it to apply to the Court of Appeal for a new trial on the ground that the verdict was against the weight of evidence, and the Court of Appeal may direct a new trial. In cases where the clemency of the Crown is sought, the Governor in Council, if he entertains a doubt whether the convicted person ought to have been convicted, may direct a new trial at such time and before such Court as he may think proper.

Fourteen of the Magistrates are also Wardens, holding Wardens' Courts in the various goldfields. There are fifty civilian Clerks of Courts, and eighty-nine who are also police sergeants or constables.

Every Stipendiary Magistrate holds the office of Coroner, and is paid 10s. 6d. for each inquest, in addition to mileage at 1s. per mile. Besides these, there are thirty-eight Coroners, who are paid £1 1s. for each inquest, and mileage.

Bankrupt estates are administered by four Official Assignees, stationed at Auckland, Wellington, Christchurch, and Dunedin, respectively; and by twenty Deputy Assignees, resident at as many other towns. The Supreme and District Courts have jurisdiction in bankruptcy proceedings, and the Governor has power to confer similar jurisdiction in small estates on any of the Magistrates' Courts, but as yet this has not been found necessary.

The Commission of the Peace contains about seventeen hundred names, and additions are frequently made. A rota is kept in every borough and town of Justices residing within three miles of the

Courthouse, and the Justices are required either to attend the Court when summoned, or to furnish a satisfactory excuse; failing this, they are struck off the Commission. Medical practitioners, Civil servants, and others are exempt from such attendance.

Witnesses in Criminal Courts are paid 6s. per diem, and in addition 4s. for every night they are absent from home. Witnesses in civil cases are paid variously from 6s. to £1 1s. a day, according to their condition in life.

Intestate estates in New Zealand are dealt with by the Public Trust Office, and are referred to in the article on that institution.

The Attorney-General of the colony is a Cabinet Minister holding other portfolios, but the Solicitor-General is a permanent officer and a member of the Civil Service.

Jury lists are compiled annually by the police, revised by the Bench of Justices, and forwarded to the Sheriffs, who prepare from them special and common jury panels.

DEFENCES, MILITARY AND NAVAL.

The defence forces consist of the Permanent Militia (Artillery and Torpedo Corps), and the auxiliary forces of Volunteers (Cavalry, Mounted Rifles, Naval Artillery, Field Artillery, Engineers, and Rifle companies). There is a Military Adviser and Inspector of these Forces, who is an ex-Imperial officer. To the Under-Secretary for Defence all questions of expenditure are referred; while the Chief Engineer of the Public Works Department has charge of the defence-works.

MILITIA AND VOLUNTEER DISTRICTS.

The two islands (North and Middle) are divided into five districts, each commanded by a Field Officer of Militia or Volunteers, with a competent staff of drill-sergeants.

PERMANENT MILITIA (ARTILLERY).

This Force is divided into four batteries, which are stationed at Auckland, Wellington (head-quarters), Lyttelton, and Dunedin; their principal duties are to look after and take charge of all guns. stores, ammunition, and munitions of war at these four centres, The Force consists of three majors, two captains, one subaltern, with an establishment of 144 of all ranks.

PERMANENT MILITIA (TORPEDO CORPS).

This branch, like the Artillery, is divided amongst the four centres, for submarine and torpedo work, and consists of two captains, with a total establishment of 64 of all ranks. They have charge of four torpedo-boats and four steam-launches, and of all submarine-mining and torpedo stores. They are likewise employed in blowing up rocks and wrecks, and generally improving harbours.

VOLUNTEERS.—CAVALRY.

There are three troops of Cavalry, one in the North Island and two in the Middle Island. These corps are kept in a state of efficiency by going into camp for six days' training annually. The total strength of the three troops is 191 of all ranks.

VOLUNTEERS.—MOUNTED RIFLES.

There are ten corps of Mounted Rifles, seven in the North Island and three in the Middle Island, with a total strength of 548 of all ranks. These corps go into camp for an annual training of six days.

VOLUNTEERS.—NAVAL ARTILLERY.

There are seventeen batteries of this branch of the service, eight in the North Island and nine in the Middle Island, having a total strength of 1,145 of all ranks. These corps are divided into port and starboard watches; one watch is trained to assist the Permanent Artillery in working heavy ordnance, the other in submarine and torpedo work, as auxiliaries to the Torpedo Corps. These corps have cutters and other boats provided and kept up for them, and are instructed in rowing, knotting, splicing, signalling, and such-like duties.

VOLUNTEERS.—GARRISON ARTILLERY.

There is one corps of Garrison Artillery in the South Island, with a strength of 49 of all ranks.

VOLUNTEERS.—FIELD ARTILLERY.

There are nine batteries of Field Artillery, three in the North Island and six in the Middle Island, with a total of 512 of all ranks. They are armed with 6-, 9-, and 12-pounder Armstrong breech-loading rifled guns on field-carriages.

VOLUNTEERS.—ENGINEERS.

This branch consists of two corps, with a total of 124 of all ranks, both in the Middle Island. Besides carrying rifles they are provided with entrenching tools and all appliances for blowing up bridges or laying land-mines.

VOLUNTEERS.—RIFLE CORPS.

In this branch of the service there are forty-six corps (including one honorary reserve), fourteen being in the North Island and thirty-two in the Middle Island, with a total strength of 2,691 of all ranks, including garrison bands.

VOLUNTEERS.—CADET CORPS.

There is a force of thirty-six cadet corps—viz., eight in the North Island and twenty-eight in the Middle Island, with a total strength of 1,984 of all ranks.

ORDNANCE, ARMS, ETC.

The armament at the forts of the four centres consists of 8in. 13-ton breech-loading rifled Elswick Ordnance Company's guns, with 6in. 5-ton of like pattern, all mounted on hydro-pneumatic disappearing carriages; 7in. 7-ton muzzle-loading rifled guns, on traversing slides; 64-pounder rifled muzzle-loading converted 71cwt. guns, on garrison standing carriages and traversing slides; 64-pounder rifled muzzle-loading 64cwt. guns on traversing slides; 6-pounder quick-firing Nordenfeldts, on garrison pillar-mountings, and field-carriages; and Hotchkiss and Maxim quick-firing guns. The Volunteer Field Artillery are armed with 6-, 9-, and 12-pounder Armstrong breech-loading rifled guns, and the whole of the Force have carbines or rifles (short) of Snider pattern.

There is a large stock of Whitehead torpedoes, contact- and ground-mines, in charge of the Torpedo Corps, as well as four Thorneycroft torpedo-boats.

ENROLMENT, ETC.

Members of the Permanent Militia are enrolled for three years' service, and Volunteers for one year. The Permanent Militia is recruited from men who have one year's efficient service in the Volunteers; and after passing the gunnery course in the Permanent Militia the men are eligible for transfer to police and prison service.

INSTRUCTORS.

The Instructors for Permanent Artillery and Torpedo Corps are obtained from the School of Gunnery at Shoeburyness, and from the Royal Engineers, under a three years' engagement, on completion of which they return to their regiments.

CAPITATION.

An annual capitation of £2 10s. is granted to each efficient Volunteer, and a sum not exceeding £20 to each efficient cadet corps. One hundred and fifty rounds of Snider ball-cartridge are issued each year free to every Volunteer, and twenty-five rounds to each cadet over thirteen years of age.

ADMINISTRATION.

The defence forces of New Zealand are administered under "The Defence Act, 1886."

EXPENDITURE ON THE ESTABLISHMENT AND MAINTENANCE OF DEFENCES FROM 1884–85 TO 1893–94.

Year.	Military Expenditure.	Harbour Defences.	Total.
	£	£	£
1884–85	90,816	9,601	100,417
1885–86	91,242	127,167	218,409
1886–87	89,927	139,429	229,356
1887–88	122,061	73,458	195,519
1888–89	53,591	50,089	103,680
1889–90	63,614	15,752	79,366
1890–91	80,891	10,798	91,689
1891–92	75,343	7,644	82,987
1892–93	59,808	11,205	71,013
1893–94	56,570	3,976	60,546
1894–95	62,181	2,495	64,676

ANNUAL PENSIONS

PAID BY THE GOVERNMENT OF NEW ZEALAND, AS ON 31ST MARCH, 1895.

[By an Act passed in 1871 the pension system was abolished in New Zealand. In 1893 the Civil Service Insurance Act was passed, the main provisions of which are described at the end of this table.]

Name.	Date from which Pension commenced.	Amount.			Name.	Date from which Pension commenced.	Amount.		
Under "The Civil Service Act, 1866."					*Under "The Civil Service Act, 1866"—ctd.*				
		£	s.	d.			£	s.	d.
Allan, A. S.	1 Sept., 1888	195	5	0	Greenway, J. H.	1 Nov., 1891	116	16	0
Arrow, H.	1 Aug., 1881	26	0	0	Giles, J.	1 Feb., 1894	238	6	8
Aubrey, H. R.	1 Nov., 1880	223	0	0	Halliday, C.	31 Aug., 1886	96	13	4
Austin, A. D.	1 Oct., 1887	247	10	0	Hamilton, M.	11 July, 1880	200	0	0
Baddeley, H. C.	12 Jan., 1888	225	0	0	Harsant, W.	11 June, 1878	151	13	4
Bailie, F.	1 Feb., 1893	77	8	8	Hart, J. T.	12 Nov., 1890	193	7	0
Baker, E.	1 Nov., 1880	214	17	1	Hartwright, H.	1 Jan., 1886	152	7	8
Barnard, W. H.	1 June, 1880	101	18	1	Heddell, P.	17 Oct., 1894	90	0	0
Barr, A.	1 Oct., 1888	366	13	4	Henn, J.	1 April, 1893	88	3	4
Batkin, C. T.	1 April, 1890	533	6	0	Hill, E.	13 Sep., 1871	100	0	0
Bicknell, F.	1 Feb., 1882	96	13	4	Hill, F. J.	1 Aug., 1892	95	0	0
Blomfield, J.	21 Mar., 1889	101	15	0	Hill, T.	1 May, 1892	400	0	0
Bridson, W.	1 Aug., 1893	146	8	7	Holden, T.	13 Oct., 1878	31	5	0
Brown, W. R. E.	1 Aug., 1892	265	16	8	Jackman, S. J.	1 May, 1892	149	6	8
Buchanan, J.	1 July, 1886	127	13	6	Johnston, D.	15 Dec., 1880	366	13	4
Bull, E.	1 July, 1887	105	14	3	Judd, A.	1 April, 1887	173	6	8
Burgess, A.	1 June, 1886	116	13	4	Keetley, E.	1 July, 1884	18	12	10
Burn, J. F.	1 July, 1887	51	0	0	Kelly, J. D.	1 July, 1891	130	19	0
Butts, E. D.	1 April, 1893	258	6	8	Kissling, T.	1 Jan., 1894	317	5	2
Campbell, F. E.	1 Mar., 1890	466	13	0	Laing, E. B.	1 April, 1887	112	10	0
Carrington, O.	1 Feb., 1878	300	0	0	Lang, A.	1 Feb., 1893	75	15	3
Chapman, R.	1 Jan., 1868	255	19	0	Leahy, J.	1 Mar., 1895	67	3	0
Cheesman, G. H.	1 Mar., 1893	82	10	0	Lincoln, R. S.	1 Mar., 1889	68	17	0
Cheeseman, W. F.	1 April, 1890	154	15	1	Lockwood, W. H.	1 Jan., 1880	22	18	4
Clarke, H. T.	1 Jan., 1879	400	0	0	Lodge, W. F.	1 Oct., 1881	185	0	0
Clarke, H.	1 Oct., 1879	98	13	0	Lundon, D.	1 May, 1892	210	0	0
Cooper, G. S.	1 Aug., 1892	533	6	8	Lusher, R. A.	31 Aug., 1880	76	16	8
Costall, J.	10 July, 1892	131	3	10	Meikle, A. M.	1 May, 1887	145	14	3
Creeke, W.	1 April, 1891	52	15	8	Mills, W.	23 Sept., 1875	385	14	4
Crowe, A.	31 Dec., 1885	68	12	3	Mitford, G. M.	1 Feb., 1869	196	15	0
Culpan, W.	1 Dec., 1868	62	10	0	Monson, J. R.	1 Oct., 1882	271	16	0
Cunningham, J.	1 Feb., 1888	175	0	0	Monro, H. A. H.	1 Nov., 1880	342	17	2
Daniell, H. C.	1 Jan., 1878	266	13	4	Morpeth, W. J.	4 Aug., 1894	195	4	9
DeCastro, C. D.	1 Mar., 1892	172	10	0	Morrow, H.	1 June, 1890	120	16	8
Dick, S. J.	1 Feb., 1893	250	0	0	Macarthur, J.	1 Jan., 1876	65	0	0
Dickey, A. J.	1 Nov., 1875	122	0	5	McCulloch, H.	1 Aug., 1890	233	0	0
Earle, J.	13 Nov. 1888	104	10	0	MacDonnell, R. T.	23 July, 1890	150	0	0
Eliott, G. E.	30 Nov., 1872	400	0	0	McKellar, H. S.	1 Aug., 1892	433	6	8
Ensor, J.	1 Feb., 1893	51	6	8	O'Connor, R.	1 Sept., 1892	147	0	6
Falck, F.	1 Mar., 1893	125	13	4	Parker, T. W.	1 June, 1881	242	3	9
Fenton, F. D.	3 Nov., 1881	630	19	0	Parris, R.	1 Jan., 1877	314	5	8
Freeth, J. J.	1 Mar., 1894	116	13	4	Pauling, G. W.	1 Feb., 1887	91	1	5
Gill, R. J.	1 Sep., 1886	228	11	5	Pearson, W. H.	30 Sept., 1884	340	9	6
Gisborne, W.	1 Oct., 1876	466	13	4	Phillips, W. M.	1 Dec., 1894	69	4	5
Graham, G. H.	8 Sep., 1891	52	10	0	Pickett, R.	1 Aug., 1866	209	10	6
Gregory, J.	16 Feb., 1881	53	6	8	Pinwill, A.	1 July, 1891	120	17	0

ANNUAL PENSIONS—*continued.*

me.	Date from which Pension commenced.	Amount. £	s.	d.
The Civil Service Act, 1866"—continued.				
..	1 May, 1881	100	0	0
, R. E. E.	4 Dec., 1883	110	14	3
. ..	30 Oct., 1876	418	15	0
. ..	1 July, 1893	44	1	8
F. ..	1 June, 1892	217	0	0
n, J. ..	6 Oct., 1892	155	0	0
n, W. J.	1 July, 1892	248	6	8
. ..	1 Jan., 1878	466	13	4
. ..	1 May, 1868	277	1	8
..	1 Oct., 1894	109	16	0
. B. ..	1 Nov., 1876	285	14	3
e, W. N.	1 Feb., 1879	240	0	0
A. B. ..	31 Mar., 1880	129	9	0
n, J. ..	16 July, 1889	146	14	0
A. ..	1 June, 1878	195	0	0
..	1 June, 1894	49	5	6
. E. ..	1 July, 1877	484	11	6
. H. ..	1 July, 1876	371	8	7
, T. ..	5 Dec., 1891	83	14	0
H. ..	1 Dec., 1887	157	10	0
F. ..	1 Dec., 1892	183	0	0
J. T. ..	1 May, 1889	300	0	0
. ..	1 Mar., 1893	121	0	0
G. W. ..	1 Nov., 1875	38	15	0
, W. ..	1 Aug., 1867	69	7	3
. F. ..	1 July, 1888	180	19	0
W. ..	31 Dec., 1880	104	13	4
..	1 Sept., 1885	49	15	3
S. ..	1 Sept., 1887	56	2	10
H. S. ..	1 July, 1888	366	13	0
R. ..	1 Oct., 1892	145	0	0
V. ..	1 July, 1881	36	5	0
V. B. ..	1 July, 1873	375	4	9
, T. W...	1 Feb., 1874	127	19	4
s, E. S...	1 Nov., 1880	250	0	0
, E. M...	1 April, 1880	135	0	0

Name.	Date from which Pension commenced.	Amount. £	s.	d.
Under "The Civil Service Act, 1866"—continued.				
Wilson, W. W. ..	1 Feb., 1881	100	14	3
Woon, J. G. ..	1 July, 1892	209	10	6
Wrigg, H. C. W...	1 Aug., 1889	157	2	10
Under "The Hamerton Pension Act, 1891."				
Hamerton, R. C.	11 Sept., 1891	250	0	0
Under "The Meredith and Others Pensions Act, 1870."				
Collins, Mary ..	13 Nov., 1869	65	0	0
Hamlin, Rhoda B.	1865	50	0	0
Under "The Military Pensions Act, 1866."				
Arapera te Reo..	1 July, 1870	20	0	0
Brown, M. R. ..	..	75	0	0
Buck, Cath. M...	..	70	0	0
Hastings, L. ..	..	55	0	0
Iritona, Hanita..	8 Nov., 1868	12	0	0
Marara, Ngakoa	3 Dec., 1860	36	0	0
McDonald, E. ..	..	36	0	0
McDonnell, W...	..	150	0	0
Morrison, Ann ..	26 Oct., 1865	36	0	0
Percy, J. A. ..	..	150	0	0
Ross, Edward O.	17 Nov., 1866	75	0	0
Russell, C. ..	..	36	0	0
Von Tempsky, A.	3 Oct., 1868	120	0	0
Adamson, T. ..	(a)	0	2	2*
Beamish, J. G...	(b)	0	1	6*
Corbett, George	(c)	0	2	0*
Crawford, C. F	..	0	2	0*
Crosby, H. ..	(d)	0	2	0*
Dore, G. H. ..	(e)	0	2	0*
Gibbons, M. C ..	12 Oct., 1869	0	2	2*
Hamblyn, J. ..	1 Oct., 1872	0	2	2*
Hope, E. L. ..	(f)	0	1	6*

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liem.

d. from 25th October, 1869; increased to 2s. 2d., 7th December, 1870.

from 17th December, 1868, to 17th December, 1869; 1s. 6d. from 17th December, 1869, to mber, 1870; 8d. from 17th December, 1870, to 30th September, 1874; increased to 1s. 6d., r, 1874.

rom 5th June, 1867, to 5th June, 1868; 2s. from 5th June, 1868, to 5th June, 1869; per- om 9th November, 1869.

or two years, from 9th April, 1870; renewed for twelve months; again renewed for twelve permanent from 1st May, 1874.

rom 1st January, 1869, for eighteen months; permanent from 18th May, 1872.

d. for twelve months, from 26th April, 1869; renewed for twelve months, 1870; renewed months, 1871; permanent from 12th May, 1872.

ANNUAL PENSIONS—*continued.*

Name.	Date from which Pension commenced.	Amount.		
		£	s.	d.
Under "The Military Pensions Act, 1866"—continued.				
Kelly, T. ..	9 April, 1870	0	2	2*
Kershaw, P. ..	9 Aug., 1869	0	1	6*
Lacey, Garrett ..	..	0	2	2*
Lake, T. ..	..	0	2	6*
Lloyd, T. ..	(g)	0	2	0*
McKay, G. ..	..	0	1	0*
McMahon, T. ..	(h)	0	2	0*
Monck, J. B. ..	1 April, '72 (i)	0	1	0*
Shanaghan, J. ..	..	0	1	6*
Shepherd, R. ..	(k)	0	2	8*
Timms, W. ..	(l)	0	1	6*
Tuffin, G. ..	..	0	2	2*
Vance, R. ..	8 April, 1870	0	2	2*
Walsh, W. ..	15 Nov., 1866	0	1	6*
Wasley, Edw. O.	(m)	0	2	2*
Williamson, F. ..	1 June, 1869	0	2	0*
Anaru Patapu ..	14 May, 1865	0	0	9*
Anaru Taruke ..	1 Jan., 1867	0	0	6*
Apera te Kounga	14 May, 1864	0	2	6*
Honi Parake ..	1 Jan., 1867	0	0	6*
Karena Ruatani-wha	1 July, 1870	0	1	0*
Matiu Whitiki ..	1 April, 1885	0	0	6*
Mauparoa ..	1 July, 1867	0	1	0*
Mehaka Kepa ..	2 Aug., 1865	0	0	9*
Pera Taitimu ..	12 Oct., 1869	0	1	0*
Raniera Ngoto ..	1 Oct., 1884	0	0	6*
Under "The Walsh and Other Pensions Act, 1869."				
Hewett, Ellen A.	10 Feb., 1865	50	0	0
Under "The Militia Act Amendment Act, 1862."				
Bending, W. ..	..	0	2	0*
Bilton, F. ..	..	0	2	0*
Callaghan, D. ..	..	0	2	2*
Cody, W. ..	..	0	1	0*
Dunn, A. J. N. ..	..	0	2	0*
Herford, A. ..	..	130	0	0
King, E. M. ..	..	80	0	0
Leaf, R. ..	(n)	0	0	6*
Oxenham, W. ..	..	0	1	6*
Sarten, Lucy ..	1864	0	2	0*
Skinner, W. H. ..	..	0	2	6*
Vickery, W. .	..	0	2	0*
Woolfe, T. ..	..	0	2	0*
Under "The Schafer, McGuire, and Others Pensions Act, 1872."				
McGuire, E. ..	29 Sept., 1871	0	1	0*
Russell, W. ..	1 July, 1871	0	1	0*
Schafer, C. ..	1 July, 1871	30	0	0
Under "The Supreme Court Judges Act, 1874."				
Gresson, H. B. ..	1 April, 1875	750	0	0

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* Per diem.

(g) 2nd October, 1869; ceased on 9th April, 1870; renewed, 22nd April, 1874.

(h) 1s. 6d. from —, 1867; increased to 2s. from 14th February, 1868.

(i) 1s. 6d. for twelve months, from 15th March, 1869; 1s. for twelve months, from March, 1870; 1s. for twelve months, from March, 1871; permanent from 1st April, 1872.

(k) 3s. for twelve months, from 9th April, 1870; 2s. 8d.. permanent, from 1st May, 1871.

(l) 1s. 6d. for twelve months, from 18th October, 1869; 1s. 6d. for twelve months, from October, 1870; permanent from 5th November, 1871.

(m) 1s. 6d. for eight months, from 20th September, 1869; 2s. 2d. for twelve months, from 11th June, 1870; 2s. 2d. for twelve months, from 11th June, 1871; 2s. 2d. from 11th June, 1872; permanent from 12th June, 1873.

(n) 1s. from 10th May, 1865; renewed for twelve months, April, 1866; again renewed for twelve months; 8d. for twelve months, from 1868, to 10th May, 1869; 6d. for twelve months, from May, 1869; permanent from 11th May, 1870.

"THE CIVIL SERVICE INSURANCE ACT, 1893."

It is provided by the above-named Act that every person appointed to the Civil Service under "The Civil Service Reform Act, 1886," or afterwards, shall retire at the age of sixty years; but the Governor in Council may, nevertheless, require any officer who has attained such age to continue to perform his duties, unless unfitted by reason of ill-health or other cause.

Every officer appointed after the passing of this Act is required to effect a policy with the Government Life Insurance Commissioner (on his life), providing for the following combined benefits:—

(1.) The payment of a sum of money on the death of such officer, should it occur before he attains the age of sixty years; and

(2.) The payment to such officer of an annuity until death should he survive the age of sixty years.

The premiums are paid in the form of deductions from the salaries of officers effecting policies according to the following schedule. The policies and moneys secured thereby are not assignable, and cannot be charged or attached.

There are provisions for payment of surrender value of policies to officers whose services are dispensed with, or who voluntarily leave the Service.

Annual Deductions for Policies.

	£	s.	d.
Under £150	5	0	0
£150 and under £200 ..	7	10	0
£200 „ £250 ..	10	0	0
£250 „ £300 ..	12	10	0
£300 „ £350 ..	15	0	0
£350 „ £400 ..	17	10	0
£400 „ £450 ..	20	0	0
£450 „ £500 ..	22	10	0
£500 and under £550 ..	25	0	0
£550 „ £600 ..	27	10	0
£600 „ £650 ..	30	0	0
£650 „ £700 ..	32	10	0
£700 „ £750 ..	35	0	0
£750 „ £800 ..	37	10	0
£800	40	0	0

NEW ZEALAND NEWSPAPERS.

There are (January, 1895) 188 publications on the register of newspapers for New Zealand. Of these, 52 are daily papers, 16 are published three times a week, 28 twice a week, 64 once a week, 3 fortnightly, and 25 monthly.

The names of the newspapers, with the postal districts and towns in which they are printed, are given in the following list, the second column showing the day or period of publication. M. signifies morning paper; E., evening paper:—

Auckland.

Aratapu—	
Wairoa Bell	.. Friday.
Auckland—	
Auckland Evening Star (E.)	.. Daily.
Auckland Weekly News and Town and Country Journal	.. Saturday.

Auckland—*continued.*	
Bible Standard	Monthly.
Church Gazette	„
Helping Hand	„
New Zealand ABC Guide	„
New Zealand Craftsman	„
New Zealand Farmer, Bee and Poultry Journal	„
New Zealand Graphic, Ladies' Journal, and Youths' Companion	Wednesday.
New Zealand Herald (M.)	Daily.
Observer	Saturday.
Produce Circular and Monthly Report	Monthly.
Searchlight	Saturday.
Sharland's Trade Journal	„
Sporting Review	„
Coromandel—	
Coromandel County News (E.)	Tuesday, Friday.
Dargaville—	
Northern Advertiser	Friday.
Hamilton—	
Waikato Times and Thames Valley Gazette (M.)	Mon., Wed., Sat.
Kawakawa—	
Northern Luminary	Saturday.
Onehunga—	
Manukau Gazette and County Times	„
Rotorua—	
Hot Lakes Chronicle	Wednesday.
Whangarei—	
Northern Advocate	Friday.

THAMES.

Opotiki—	
Korimako Hou	Monthly.
Opotiki Herald, Whakatane County and East Coast Gazette (E.)	Tuesday, Friday.
Paeroa—	
Hauraki Tribune and Thames Valley Advertiser (M.)	„ „
Ohinemuri Gazette	Saturday.
Tauranga—	
Bay of Plenty Times and Thames Valley Warden (E.)	Mon., Wed., Fri.
Te Aroha—	
Te Aroha and Ohinemuri News and Upper Thames Advocate (M.)	Wed., Saturday.
Thames—	
Despatch	Saturday.
Thames Star (E.)	Daily.
Thames Advertiser and Miners' News (M.)	„

GISBORNE.

Gisborne—	
Poverty Bay Herald (E.)	Daily.

NEW PLYMOUTH.

Inglewood—	
Record and Waitara News (M.)	Wed., Saturday.
Weekly Record	Saturday.
New Plymouth—	
Budget and Taranaki Weekly Herald	„
Daily News (M.)	Daily.
Taranaki Herald (E.)	„
Taranaki News	Saturday.

Opunake—	
Opunake Times (E.)	Tuesday, Friday.
Stratford—	
Egmont Post (E.)	Mon., Wed., Fri.
Egmont Settler (E.)	Daily.

NAPIER.

Danevirke—	
Bush Advocate (E.)	Tues., Thur., Sat.
Hastings—	
Huia Tangata Kotaki	Saturday.
Napier—	
Daily Telegraph (E.)	Daily.
Evening News and Hawke's Bay Advertiser (E.)	〃
Hawke's Bay Herald (M.)	〃
Hawke's Bay Weekly Courier	Friday.
New Zealand Fire and Ambulance Record	Monthly.
Waipawa—	
Waipawa Mail (E.)	Tues., Thur., Sat.
Wairoa—	
Wairoa Guardian and County Advocate (M.)	Wed., Saturday.

WANGANUI.

Eltham—	
Eltham Guardian, Kaponga, Ngaire, Te Roti, Hawera, Stratford, and Cardiff Advertiser (M.)	Wed., Saturday.
Hawera—	
Egmont Star	Saturday.
Hawera and Normanby Star, Patea County Chronicle, and Waimate Plains Gazette (E.)	Daily.
Hawera Morning Post, Manaia, Normanby, Opunake, Okaiawa, Patea, Eltham, and Stratford Advertiser (M.)	Tues., Thur., Sat.
Hunterville—	
Paraekaretu Express, Hunterville, Ohingaiti, Moawhango, and Rata Advertiser (M.)	Tuesday, Friday.
Manaia—	
Waimate Witness (E.)	Wed., Saturday.
Marton—	
Mercury (M.)	Daily.
Rangitikei Advocate and Manawatu Argus (E.)	〃
Patea—	
Patea County Press (E.)	Mon., Wed., Fri.
Wanganui—	
Wanganui Chronicle and Patea-Rangitikei Advertiser (M.)	Daily.
Wanganui Herald (E.)	〃
Weekly Chronicle and Patea-Rangitikei Record	Saturday.
Yeoman	Friday.

WELLINGTON.

Carterton—	
Wairarapa Observer, Featherston Chronicle, East Coast Advertiser, and South County Gazette (E.)	Tues., Thur., Sat.
Eketahuna—	
Eketahuna Express and North Wairarapa Courier (M.)	Wed., Sat.
Feilding—	
Feilding Star (E.)	Daily.
Foxton—	
Manawatu Herald (E.)	Tues., Thur., Sat.
Greytown—	
Wairarapa Standard (E.)	Mon., Wed., Fri.

Masterton—	
Eketahuna and Pahiatua Mail (M.)	Daily.
Wairarapa Daily Times (E.)	„
Wairarapa Star (E.)	„
Wairarapa Weekly Times	Wednesday.
Weekly Star and Wellington District Advertiser	Thursday.
Otaki—	
West Coast Mail and Horowhenua County Advertiser (M.)	Tuesday, Friday.
Pahiatua—	
Pahiatua Herald (E.)	Mon., Wed., Fri.
Palmerston North—	
Manawatu Daily Standard, Rangitikei Advertiser, and West Coast Gazette (M.)	Daily.
Manawatu Daily Times (E.)	„
Manawatu Weekly, and Oroua and Rangitikei Record	Thursday.
Petone—	
Hutt and Petone Chronicle	Wednesday.
Shannon—	
Manawatu Farmer and Horowhenua County Chronicle (E.)	Mon., Wed., Fri.
Wellington—	
Church Chronicle	Weekly.
Daybreak	Fortnightly, Sat.
Evening Post (E.)	Daily.
Fair Play	Monthly.
New Zealand Mail, Town and Country Advertiser	Friday.
New Zealand Times (M.)	Daily.
Register and Property Investors' Guide	Monthly.
Southern Sunbeam	Saturday.
Typo	Monthly.
Wellington Price Current and New Zealand Trade Review	„
Woodville—	
Woodville Examiner (E.)	Mon., Wed., Fri.

BLENHEIM.

Blenheim—	
Evening Star	Saturday.
Marlborough Daily Times and Town and Country Advertiser (E.)	Daily.
Marlborough Express (E.)	„
Marlborough Weekly News	Friday.
Havelock—	
Pelorus Guardian and Miners' Advocate (M.)	Tuesday, Friday.
Kaikoura—	
Kaikoura Star and North Canterbury and South Marlborough News (E.)	„ „
Picton—	
Marlborough Press, County of Sounds Gazette (M.)	„ „

NELSON.

Collingwood—	
Golden Bay Argus	Friday.
Nelson—	
Colonist (M.)	Daily.
Nelson Evening Mail (E.)	„
Nelson Evening Star (E.)	„
Takaka—	
Takaka News and Collingwood Advertiser	Thursday.

WESTPORT.

Charleston—	
Charleston Herald, Brighton Times, and Croninville Reporter (M.)	Wed., Saturday.

Lyell—	Lyell Times and Central Buller Gazette	Saturday.
Westport—	Buller Miner	Friday.
	Westport News (M.)	Daily.
	Westport Times and Evening Star (E.)	〃

GREYMOUTH.

Brunnerton—	Brunnerton News, Blackball Courier, and Grey Valley Advertiser (E.)	Daily.
Greymouth—	Evening Star and Brunnerton Advocate (E.)	〃
	Grey River Argus (M.)	〃
	Weekly Argus	Weekly.
Reefton—	Inangahua Herald and New Zealand Miner (M.)	Daily.
	Inangahua Times and Reefton Guardian (E.)	〃

HOKITIKA.

Hokitika—	Hokitika Guardian and Evening Star (E.)	Daily.
	Leader	Thursday.
	West Coast Times (M.)	Daily.
Kumara—	Kumara Times and Dillman's and Goldsborough Advertiser (E.)	〃
Ross—	Ross and Okarito Advocate and Westland Advertiser (M.)	Wed., Saturday.

CHRISTCHURCH.

Akaroa—	Akaroa Mail and Banks Peninsula Advertiser (M.)	Tuesday, Friday.
Ashburton—	Ashburton Guardian (E.)	Daily.
	Ashburton Mail, Rakaia, Mount Somers, and Alford Forest Advertiser (M.)	Tues., Thur., Sat.
Christchurch—	Canterbury Times	Friday.
	Lyttelton Times (M.)	Daily.
	Mercantile and Bankruptcy Gazette of New Zealand	Friday.
	New Zealand Baptist	Monthly.
	New Zealand Butcher	〃
	New Zealand Church News	〃
	New Zealand Railway Review	〃
	New Zealand Schoolmaster	〃
	New Zealand Volunteer and Civil Service Gazette and Naval and Military Chronicle	〃
	New Zealand War Cry and Official Gazette of the Salvation Army	Tuesday.
	New Zealand Wheelman	Fortnightly, Sat.
	Press (M.)	Daily.
	Prohibitionist	Fortnightly, Sat.
	Star (E.)	Daily.
	Tribune	Monthly.
	Truth (E.)	Daily.
	Weekly Press	Friday.
	Young Soldier	Saturday.
Oxford (East)—	Oxford and Cust Observer	〃

Rangiora—	
Standard and North Canterbury Guardian (M.)	Wed., Saturday.
Southbridge—	
Ellesmere Guardian (M.)	" "

TIMARU.

Temuka—	
Geraldine Guardian (M.)	Tues., Thur., Sat.
Temuka Leader (M.)	" " "
Timaru—	
South Canterbury Times (E.)	Daily.
Timaru Herald (M.)	"
Waimate—	
Waimate Times (M.)	Wed., Saturday.

OAMARU.

Oamaru—	
North Otago Times (M.)	Daily.
Oamaru Mail (E.)	"

DUNEDIN.

Balclutha—	
Clutha Leader	Friday.
Free Press	"
Clinton—	
Clutha County Gazette and Popotunoa Chronicle and Clinton Advertiser	"
Clyde—	
Dunstan Times, Vincent County Gazette, and General Goldfields Advertiser	"
Cromwell—	
Cromwell Argus and Northern Goldfields Gazette	Tuesday.
Dunedin—	
Advocate	Saturday.
Christian Outlook	"
Evening Star (E.)	Daily.
Farmers' Circular	Thursday.
Katipo	Monthly.
New Zealand Insurance, Finance, and Mining Journal	"
New Zealand Tablet	Friday.
Otago Daily Times (M.)	Daily.
Otago Witness	Thursday.
Otago Workman, Dunedin and Suburban Advertiser	Saturday.
Phonographic Magazine and Typewriting News	Monthly.
Temperance Standard	"
Triad	"
Weekly Budget	Saturday.
Lawrence—	
Tuapeka Times (M.)	Wed., Saturday.
Milton—	
Bruce Herald (M.)	Tuesday, Friday.
Mosgiel—	
Taieri Advocate (M.)	Wed., Saturday.
Naseby—	
Mount Ida Chronicle (Thurs. E. and Sat. M.)	Thur., Saturday.
Palmerston—	
Palmerston and Waikouaiti Times	Friday.
Roxburgh—	
Mount Benger Mail	Saturday.
Tapanui—	
Tapanui Courier and Central Districts Gazette	Wednesday.

INVERCARGILL.

Arrowtown—	
Lake County Press	Thursday.
Gore—	
Mataura Ensign (M.)	Tuesday, Friday.
Southern Standard (M.)	„ „
Invercargill—	
Southern Cross	Saturday.
Southlander	Friday.
Southland Daily News (E.)	Daily.
Southland Times (M.)	„
Weekly Times	Friday.
Queenstown—	
Lake Wakatipu Mail (E.)	„
Riversdale—	
Waimea Plains Review and Market Report	„
Riverton—	
Western Star and Wallace County Gazette (M.)	Wed., Saturday.

The foregoing towns are arranged according to the postal district in which they are situated.

Taking the provincial districts, Auckland has 33 publications registered as newspapers, Taranaki 9, Hawke's Bay 9, Wellington 41, Marlborough 7, Nelson 10, Westland 11, Canterbury 29, and Otago 39.

PART II.—STATISTICAL INFORMATION.

[The progress of the colony from the beginning is shown in the statistical broadsheets which follow the General Index.]

POPULATION.

THE estimated population of New Zealand on the 31st December, 1894, with the increase for the year by excess of births over deaths and by immigration over emigration, was as under :—

	Persons.	Males.	Females.	Persons.	Males.	Females.
Estimated population (exclusive of Maoris) on 31st December, 1893				672,265	357,635	314,630
Increase during the year 1894—						
Excess of births over deaths	11,610	5,461	6,149			
Excess of arrivals over departures ..	2,253	667	1,586			
				13,863	6,128	7,735
Estimated population (exclusive of Maoris) on 31st December, 1894				686,128	363,763	322,365
Maori population, census 1891				41,993	22,861	19,132
Total estimated population of the colony on 31st December, 1894				728,121	386,624	341,497

The estimated number of Chinese in the colony at the end of the year 1894 was 4,145 persons, of whom 17 were females. These are included in the above table. At the census of April, 1891, the number in the colony was 4,444, so that in the space of three years and nine months a reduction of 299 persons had taken place, caused mainly by the excess of departures over arrivals.

The Maori population can be given only for the date of the census, as very few births or deaths of Natives are registered; but the movement of Native population, judged by the results of the enumeration of 1886 (when the number was 41,969) compared with the number in 1891 (41,993), is so small that to use the same figures for several years in succession does not give rise to any great degree of error. Over 100 Maoris lost their lives at the eruption of Tarawera, which occurred between the census of 1886 and that of 1891.

Included in the population, as stated above, are the half-castes, who numbered 4,865 at the time of the census; 2,681 of these were living as members of Maori tribes, and 2,184 as Europeans. The half-castes living as Europeans increased between 1886 and 1891 by 227, or at the rate of 11·6 per cent. The number of Maori wives of Europeans was 251 in 1891, against 201 in 1886.

The estimated European population of the principal divisions of the colony on 31st December, 1894, was—

	Persons.	Males.	Females.
North Island and adjacent islets (exclusive of Maoris)	310,340	164,657	145,683
Middle Island and adjacent islets (exclusive of Maoris)	375,263	198,813	176,450
Stewart Island	216	124	92
Chatham Islands (exclusive of natives)	302	165	137
Kermadec Islands	7	4	3
Total for the colony (exclusive of Maoris) ..	686,128	363,763	322,365

To obtain these estimates of population in the different islands the census figures have been corrected (1) by adding the natural increases, that is, the excess of births over deaths, to the population of each island, and (2) by allocating the excess of immigration over emigration for the whole colony proportionately to the population of each island at census time. By this plan, no doubt, the North Island has suffered somewhat. But as the arrivals are all counted at the first, and the departures at the last port touched at, no other method of distributing the total gain can be employed. A more serious difficulty arises from the want of records concerning the movements of population from one island to another. In all likelihood the North Island population is in reality decidedly greater than is here shown, and that of the Middle Island less.

During the interval between the censuses of March, 1886, and April, 1891, the increase of population in the North Island was far in excess of the increase in the Middle Island. The figures are: North Island, 1891, 281,455 persons, against 250,482 in 1886, a difference of 30,973, or at the rate of 12·36 per cent.; Middle Island, 1891, 344,711 persons, against 327,592 in 1886, a difference of only 17,119, or 5·22 per cent. The European population of Stewart Island did not increase, but that of the Chatham Islands rose from 199 to 271 persons. The Kermadec Islands appeared for the first time in 1891 as part of New Zealand, with a population of 19 persons.

The Australian Colonies as a whole contained on the 31st December, 1894, an estimated population of 4,153,766 persons (exclusive of the aboriginal natives of Queensland, South Australia, and Western Australia, and 41,993 New Zealand Maoris).

AUSTRALASIAN COLONIES.—ESTIMATED POPULATION ON 31ST DECEMBER, 1894.

	Males.	Females.	Total.
Queensland ..	250,834	194,321	445,155
New South Wales ..	672,950	578,500	1,251,450
Victoria	607,259	571,844	1,179,103
South Australia* ..	179,442	168,278	347,720
Western Australia ..	55,072	27,000	82,072
Tasmania	83,266	74,190	157,456
New Zealand ..	363,763	322,365	686,128

Religions and Birthplaces, 1891.

The subjoined table gives a summary of the results of the census of 1891 as to the religions of the people, with the proportion of each denomination to the whole population then and at each of the three previous censuses:—

Denominations.	Number of Adherents in 1891.	Proportions per Cent. of Population. 1878.	1881.	1886.	1891.
Church of England, and Protestants (undefined) ..	253,331	42·55	41·50	40·17	40·51
Presbyterians	141,477	22·95	23·08	22·59	22·62
Wesleyan Methodists ..	53,061	7·79	8·07	7·81	8·49
Other Methodists	10,354	1·35	1·46	1·74	1·65
Baptists	14,825	2·21	2·34	2·48	2·37
Congregational Independents..	6,685	1·34	1·38	1·35	1·07
Lutherans	5,616	1·36	1·18	1·02	0·90
Salvation Army	9,383	..	..	0·91	1·50
Society of Friends	315	0·04	0·05	0·05	0·05
Unitarians	308	0·11	0·10	0·08	0·05
Other Protestants	11,295	1·08	1·26	1·55	1·82
Roman Catholics, and Catholics (undefined)	87,272	14·21	14·08	13·94	13·96
Greek Church	56	0·02	0·01	0·01	0·01
Hebrews	1,463	0·34	0·31	0·27	0·23
Buddhists, Confucians ..	3,928	1·05	1·01	0·77	0·63
Other denominations ..	849	0·05	0·11	0·10	0·12
No denomination	8,252	0·53	0·89	1·05	1·32
No religion	1,558	0·05	0·06	0·17	0·25
Unspecified	1,288	0·42	0·27	0·50	†
Object to state	15,342	2·55	2·85	3·44	2·45
Totals	626,658	100·00	100·00	100·00	100·00

The returns of religions show that 81·03 per cent. of the people belonged to various Protestant denominations; 13·96 were Roman Catholics; and the remainder belonged to other sects, were of no denomination, or objected to state their religious views. The proportion of Roman Catholics is much less in New Zealand than in Australia.

Methodists increased between 1886 and 1891 at the rate of 14·61 per cent.; Church of England adherents increased 9·02 per cent.; Presbyterians, 8·29 per cent.; Roman Catholics, 8·12 per cent.;

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* Excluding the Northern Territory, which had a population of 4,682 persons.

† In calculating the proportions for 1891 the "Unspecified" have not been taken into account.

while the Salvation Army had the highest rate of increase, 77·84 per cent.

Freethinkers numbered 4,475 persons in 1891 against 3,925 in 1886. They are included above in the numbers for "No denomination."

The returns of birthplaces gave the following particulars :—

Born in	Persons. Census 1891.	1886. Per Cent.	1891. Per Cent.
New Zealand	366,716	51·89	58·61
England	117,070	21·72	18·71
Scotland	51,916	9·48	8·30
Ireland	47,634	8·89	7·61
Wales	2,214	0·84	0·35
Australia and Tasmania ..	15,943	2·98	2·55
Other British possessions ..	3,703	0·68	0·59
Denmark, Sweden, and Norway	4,755	0·86	0·77
Germany	4,663	0·87	0·75
China	4,470	0·79	0·71
Other countries, and at sea ..	6,557	1·50	1·05
Unspecified	1,017	..	..
Totals	626,658	100·00	100·00

The New-Zealand-born population increased between 1886 and 1891 at the rate of 22·16 per cent., but the numbers born in the Mother-country, Australian Colonies, other British dominions, and foreign parts diminished more or less in each case during the quinquennium.

Education, 1891.

Of both sexes, 77·25 per cent. of the persons could read and write, 3·98 could read only, and 18·77 could not read. Comparing with previous censuses, and for each sex separately, the proportion per cent. able to read and write will be found to rise steadily, while the proportions of those reading only, and unable to read, diminish. The figures next quoted illustrate this :—

Census.	Proportion per Cent. (Males).			Proportion per Cent. (Females).		
	Read and Write.	Read only.	Cannot Read.	Read and Write.	Read only.	Cannot Read.
1881 ..	73·31	5·01	21·68	68·94	6·39	24·67
1886 ..	75·40	4·36	20·24	72·41	5·31	22·28
1891 ..	77·95	3·74	18·31	76·47	4·24	19·29

Occupations of the People, 1891.

The number in each class of occupation as at the census of 1891, and the proportion per cent. of the total, will be found in the following table, which also shows the population divided into two sections, A and B, breadwinners and non-breadwinners, or dependents :—

Occupations.	Numbers.			Proportions per Cent.		
	Persons.	Males.	Females.	Persons.	Males.	Females.
Total population	626,658	332,877	293,781	100·00	100·00	100·00
Section A.—Breadwinners.						
Class I. Professional ..	15,821	10,082	5,739	2·52	3·03	1·95
" II. Domestic	24,928	5,537	19,391	3·98	1·66	6·60
" III. Commercial—						
Sub-cl. A. Property and finance	3,756	3,414	342	0·60	1·03	0·12
Sub-cl. B. Trade ..	22,992	20,613	2,379	3·67	6·19	0·81
Sub-cl. C. Storage ..	1,035	1,034	1	0·17	0·31	0·00
Sub-cl. D. Transport and communication	15,413	15,269	144	2·46	4·59	0·05
" IV. Industrial	70,521	59,196	11,325	11·25	17·78	3·86
" V. Agricultural, pastoral, and other primary producers—						
Sub-cl. A. Agricultural	59,058	56,671	2,387	9·42	17·03	0·81
Sub-cl. B. Pastoral ..	9,549	9,279	270	1·52	2·79	0·09
Sub-cl. C. Mineral ..	16,929	16,906	23	2·70	5·08	0·01
Sub-cl. D. Other primary producers	5,010	5,004	6	0·80	1·50	0·00
" VI. Indefinite	7,751	4,341	3,410	1·24	1·30	1·16
Section B.—Dependents (Non-breadwinners).						
Class VII. Dependents—						
Sub-cl. A. Dependent on natural guardians	369,178	122,410	246,768	58·92	36·77	84·00
Sub-cl. B. Dependent upon the State, or upon public or private support	4,717	3,121	1,596	0·75	0·94	0·54

No less than 37·71 per cent. of the male and 84·54 per cent. of the female population are here shown to be dependent. 122,410 males and 246,768 females were maintained by natural guardians, and 3,121 males and 1,596 females by the State or by public or private support. The greater number of those dependent upon natural guardians were scholars and students. There were also a large number of dependent relatives not stated to be performing domestic duties, and a large number of females performing domestic duties for which no remuneration was paid.

The classes are divided into 24 orders, which again are divided into 103 suborders. The items of the suborders are the specific occupations. In the tables belonging to Part VII. of the census volume is given the total number of persons engaged in each occupation, with notes explaining their several positions and employments.

Conjugal Condition, 1891.

Of persons of both sexes, 67·62 per cent. were found to be unmarried, 29·18 married, and 3·20 widowed. Taking the male sex, and comparing the results of three censuses, the proportions of unmarried and married diminish, but the proportion of widowed increases. On the female side, the proportions of unmarried and widowed increase, while the married diminish. The figures are as under:—

Census.	Proportion per Cent. (Males).			Proportion per Cent. (Females).		
	Unmarried.	Married.	Widowed.	Unmarried.	Married.	Widowed.
1881 ..	70·39	27·73	1·88	63·64	33·05	3·31
1886 ..	70·35	27·61	2·04	64·59	31·74	3·67
1891 ..	70·02	27·61	2·37	64·95	30·94	4·11

The Chinese are not included in the figures from which these calculations are made.

The number of bachelors aged 20 and upwards was 70,197, and of spinsters aged 15 and upwards 67,000, being 105 bachelors to every 100 spinsters. Only in Canterbury and Otago were the spinsters in excess of the bachelors, but notably so in Canterbury.

The number of husbands was 90,371, and of wives 90,765, giving an excess of 394 of the latter.

Proportions of the Sexes.

Excluding the Maori population, the females in the colony are now in the proportion of 88·62 to every 100 males. At the time of the census the proportion of females to males was greater in New Zealand than in Queensland, New South Wales, and Western Australia, but less than in Victoria, South Australia, and Tasmania.

	Females to every 100 Males at Census, 1891.
Queensland	76·04
New South Wales	84·12
Victoria	90·16
South Australia	92·33
Western Australia	66·79
Tasmania	89·10
New Zealand	88·25

Populations of Provincial Districts.

The following table gives the population in each provincial district estimated for the 31st December, 1894. It must, however, be pointed out that at a distance of three years and nine months from the census it is impossible to guarantee the correctness of these figures. There are no records of interprovincial arrivals and departures, and therefore in times of change the further the date from the last census the greater the liability to error. New Zealand being insular, the excess of arrivals over departures for the whole colony can be fairly well arrived at, and the excess of births over deaths, or natural increase, can also be found, giving a close estimate of the total population for any year; but the movement of population within the colony cannot be determined, and the subjoined figures must therefore be accepted as approximations only. As stated previously, the provincial districts of the North Island have no doubt been under-estimated in the allocation of the excess of arrivals over departures:—

	31st December, 1894.		
	Persons.	Males.	Females.
Auckland	145,431	76,241	69,190
Taranaki	24,767	13,139	11,628
Hawke's Bay	31,784	17,403	14,381
Wellington	108,358	57,874	50,484
Marlborough	14,103	7,778	6,325
Nelson	37,796	20,974	16,822
Westland	16,657	9,561	7,096
Canterbury	140,108	72,378	67,730
Otago	166,815	88,246	78,569
Chatham Islands	302	165	137
Kermadec Islands	7	4	3
Totals	686,128	363,763	322,365

Populations of Counties.

These can be given only as at the date of the last census.* The same objections that may be lodged against the endeavour to estimate the populations of the provincial districts at a distance of time from the census will apply with still greater force to any calculation of the numbers at present resident in the several counties and boroughs. The figures are therefore left as they were determined by the census. For statistical, as for administrative purposes, each borough is treated as distinct from the county wherein it lies. In April, 1891, the number of the counties was 78. (This number has since been increased to 81 by the creation of three new counties—Kiwitea and Pohangina, both cut out of Oroua County, and Levels, taken out of Geraldine.) Of these the North Island had 45, with a county population amounting altogether to 155,057 persons. The Middle Island had 32, the population being 196,838. Stewart Island is a county in itself. The names and populations of the various counties in the colony were as under at the date of the census:—

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* In April, 1896, a new census will be taken, so that the next Year-book should contain populations of all divisions of the colony brought up to date.

Counties.	Persons.	M.	F.	Counties.	Persons.	M.	F.
Mongonui	1,389	788	601	Waipawa	7,906	4,432	3,474
Whangaroa	878	487	391	Patangata	2,044	1,378	666
Hokianga	1,494	871	623	Pahiatua...	2,365	1,414	951
Bay of Islands ...	2,562	1,437	1,125	Wairarapa North ...	5,143	3,092	2,051
Hobson	3,298	2,154	1,144	Wairarapa South ...	4,980	2,863	2,117
Whangarei	6,120	3,456	2,664	Hutt	6,114	3,242	2,872
Otamatea	2,054	1,190	864	Sounds	720	426	294
Rodney	3,170	1,681	1,489	Marlborough	6,590	3,897	2,693
Waitemata	6,184	3,492	2,692	Kaikoura	1,460	817	643
Eden	13,782	6,791	6,991	Collingwood	2,103	1,174	929
Manukau	11,925	6,111	5,814	Waimea...	8,942	4,740	4,202
Coromandel	2,846	1,694	1,152	Buller	4,659	2,823	1,836
Thames...	4,340	2,353	1,987	Inangahua	4,648	2,892	1,756
Ohinemuri	1,516	982	534	Grey	4,330	2,950	1,380
Piako	2,517	1,428	1,089	Westland	5,031	3,191	1,840
Waikato...	2,738	1,473	1,265	Amuri	907	679	228
Waipa	3,395	1,761	1,634	Cheviot	164	120	44
Raglan	1,090	654	436	Ashley	12,396	6,577	5,819
Kawhia	308	196	112	Selwyn	36,375	18,699	17,676
West Taupo	119	91	28	Akaroa	3,771	2,083	1,688
East Taupo	152	100	52	Ashburton	9,501	5,335	4,166
Rotorua...	418	253	165	Geraldine	14,588	7,543	7,045
Tauranga	1,393	783	610	Mackenzie	1,180	689	491
Whakatane	1,524	846	678	Waimate	4,043	2,364	1,679
Waiapu	379	256	123	Waitaki	8,375	4,609	3,766
Cook	3,945	2,239	1,706	Waihemo	2,040	1,181	859
Clifton	908	523	385	Waikouaiti	4,334	2,321	2,013
Taranaki	7,905	4,237	3,668	Peninsula	2,701	1,361	1,340
Stratford	2,521	1,416	1,105	Taieri	7,079	3,873	3,206
Hawera	4,347	2,448	1,899	Bruce	4,696	2,567	2,129
Patea	2,608	1,484	1,124	Clutha	5,574	3,246	2,328
Waitotara	2,255	1,289	966	Tuapeka...	6,327	3,830	2,497
Wanganui	2,281	1,297	984	Maniototo	2,927	1,732	1,195
Rangitikei	4,438	2,550	1,870	Vincent	3,718	2,380	1,338
Oroua	7,418	4,160	3,258	Lake	2,919	1,885	1,034
Manawatu	2,725	1,594	1,131	Southland	19,373	10,970	8,403
Horowhenua	2,289	1,495	794	Wallace	5,306	3,098	2,208
Wairoa	1,246	756	490	Fiord	71	5	6
Hawke's Bay	6,028	3,571	2,457	Stewart Island ...	202	115	87

The county population amounted to 56·18 per cent. of the total.* In counties are included all towns that have not municipal government, while, on the other hand, the people living in many of the boroughs can hardly be called townsfolk. The population in boroughs, given in detail further on, was 270,343 persons, or 43·14 per cent. of the whole. For every 100 persons resident in counties in 1891 there were 76 dwelling in boroughs. In 1886 the counties had 327,328 persons, and boroughs 245,612; or, for every 100 persons in counties, 75 were residents of boroughs. Thus it will be seen that the proportion of the town to the county population was slightly greater in 1891 than in 1886.

Population of Boroughs.

There were 87 municipal boroughs in existence when the census of 1891 was taken.

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* For population of ridings, road districts, and localities, see census volume, pp. 11 and 81.

Since the time of the census seven new boroughs have been constituted, as under :—

Boroughs.				Population. Census, April, 1891.
Danevirke,	taken from	Waipawa	County	838
Pahiatua,	„	Pahiatua	„	782
Karori,	„	Hutt	„	966
Richmond,	„	Waimea	„	452
Linwood,	„	Selwyn	„	4,580
Sumner,	„	Selwyn	„	614
Woolston,	„	Selwyn	„	2,088*

A complete list of the boroughs in the colony as in April, 1891, with populations, is here given :—

Boroughs.	Population, 1891.	Boroughs.	Population, 1891.
Birkenhead	455	Christchurch	16,223
Devonport	2,455	Sydenham	9,680
Auckland	28,613	Akaroa	571
Newton	2,087	Ashburton	1,900
Newmarket	1,586	Timaru	3,668
Parnell	3,967	Waimate	1,379
Onehunga	2,924	Oamaru	5,621
Thames	4,618	Hampden	300
Hamilton	1,212	Palmerston South	790
Cambridge	850	Hawkesbury	743
Tauranga	1,055	Port Chalmers	2,028
Gisborne	2,158	North-East Valley	3,337
New Plymouth	3,350	Maori Hill	1,426
Hawera	1,284	West Harbour	1,297
Patea	676	Dunedin	22,376
Wanganui	5,011	Roslyn	3,845
Marton	976	Caversham	4,690
Feilding	1,583	Mornington	3,523
Palmerston North	4,303	St. Kilda	1,153
Foxton	1,223	South Dunedin	4,222
Hastings	2,303	Green Island	687
Napier	8,341	Mosgiel	1,304
Woodville	971	Milton	1,158
Masterton	3,114	Kaitangata	1,145
Carterton	1,112	Balclutha	867
Greytown	1,141	Lawrence	1,026
Wellington	31,021	Roxburgh	410
Onslow	979	Tapanui	428
Melrose	1,224	Naseby	496
Petone	2,178	Cromwell	474
Lower Hutt	1,329	Alexandra	310
Picton	788	Arrowtown	426
Blenheim	3,294	Queenstown	779
Nelson	6,626	Invercargill	4,950
Westport	2,622	Invercargill North	717
Greymouth	3,787	Invercargill East	736
Brunner	2,231	Invercargill South	1,559
Hokitika	2,178	Avenal	302
Ross	822	Gladstone	287
Kumara	1,176	Campbelltown	650
Kaiapoi	1,371	Gore	1,618
Rangiora	1,783	Winton	288
Lyttelton	4,087	Riverton	843
St. Albans	5,247		

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* Population, 1893.

There is not in New Zealand, as in each of the other Australasian Colonies, one metropolitan centre of population overshadowing, by comparison, all other towns. The peculiar configuration of the country made it specially adapted for the establishment of settlements comparatively remote from one another. As a result the colony was formerly divided into nine provinces, each having its capital town. Of these, the principal are the Cities of Auckland, Wellington, Christchurch, and Dunedin.

Auckland City, situate in the northern part of the North Island, had in April, 1891, a population of 28,613. As the population of the suburbs amounted to 22,674, the total number of persons dwelling in and around Auckland was 51,287.

The City of Wellington, the seat of Government, is situated on the border of Port Nicholson, at the southern extremity of the North Island. It contained in April, 1891, as many as 31,021 persons. The suburban population is small, amounting, at the above date, to 3,169 persons only. The whole population in and around Wellington thus numbered 34,190.

The City of Christchurch is situated in the Canterbury District of the Middle Island. The census returns gave a population of 16,223 in the borough, and of 31,623 in the suburbs—that is, within the boundaries of the Christchurch Health District—making the total number in the Borough and suburbs of Christchurch 47,846.

The City of Dunedin, the principal town of the former Province of Otago, is the centre of a population amounting to 45,869, of which the borough itself contained 22,376; the remainder being distributed among eight surrounding boroughs, which are practically suburbs of Dunedin.

The estimated populations of these four chief centres, as on 31st December, 1894, were as under:—

	Estimated Population, December, 1894.
Auckland City	31,402
Wellington City	35,040
Christchurch City	17,536
Dunedin City	23,807

These estimates will be superseded next year by the actual facts shown in the census results, in which the populations of the suburbs will also be correctly stated.

Increase of Population.

The increase of population during 1894 was 13,863. As the number of births exceeded the number of deaths by 11,610, the difference between that number and 13,863 represents the excess of arrivals over departures, amounting to 2,253.

There is good reason to believe that few of the births or deaths that occur remain unregistered. Where a limit of time is given within which a birth has to be registered it follows as a matter of course that there will be occasional instances of neglect of the requirements of the law; but it would appear that such neglect is very exceptional, and that the number of unregistered events is so small as not appreciably to affect the numbers given.

The following shows the excess of births over deaths in each of the past ten years:—

1885	13,612	1890	12,284
1886	13,164	1891	11,755
1887	12,998	1892	11,417
1888	13,194	1893	11,420
1889	12,685	1894	11,610

In 1894 the population of the colony was greater than in 1885 by 19·29 per cent. Nevertheless the excess of births over deaths for 1894 is less than for 1885 by 14·71 per cent.

The excess of births over deaths in 1894 was equivalent to 1·71 per cent. of the mean population for the year, the actual increase of population being at the rate of 2·06 per cent.

A table is given showing the increase of population for ten years. Although the large increase shown for 1893 was not maintained during 1894, the arrivals in the colony during the latter year at all events exceeded the departures by 2,253. Notwithstanding the attractions of the Coolgardie goldfields and other disturbing influences, the colony not only retained the population drawn to it in the two previous years, but also absorbed more than two thousand persons from other countries.

Year.	Estimated Population on the 31st December.	Increase during the Year			Centesimal Increase on Population of Previous Year.
		By Excess of Births over Deaths.	By Excess of Immigration over Emigration.*	Net Increase.	
1885	575,172	13,612	−2,744†	10,868	1·93
1886	539,386	13,164	−17,194†	58,886	10·24
1887	603,361	12,998			
1888	607,380	13,194			
1889	616,052	12,685			
1890	625,508	12,284			
1891	634,058	11,755			
1892	650,433	11,417	4,958	16,375	2·58
1893	672,265	11,420	10,412	21,832	3·36
1894	686,128	11,610	2,253	13,863	2·06

It will be observed that in the period 1885 to 1891 the total increase of the population was less than the natural increase by excess of births over deaths, owing to the fact that the outgo of population by departures was greater than the gain by arrivals. But another state of things prevailed in 1892–94, when, in addition to the natural increase, there was a gain of 17,623 excess of arrivals over departures.

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* Corrected in accordance with census results of 1886 and 1891. The amount of loss by departures, though correct in the aggregate, cannot be allocated with exactness to the respective years. † Loss.

Arrivals and Departures.

The number of persons who arrived in the colony in the year 1894 was 25,237, a decrease of 898 on the number for the previous year. Of the arrivals in 1894, 22,196 persons were classified as adults, being above the age of twelve years, and 3,041 as children. The total number of males was 16,375, and of females 8,862. The arrivals from the United Kingdom numbered 2,846, from Victoria 4,417, from New South Wales and Queensland 15,970, from Tasmania 904. Thus the arrivals from Australia amounted to 21,291. Besides these, 377 persons came from Fiji, and 723 from the South Seas and other ports, including arrivals by mail-steamers from San Francisco.

The practice of nominating immigrants to be brought out partly at the Government expense has been discontinued since the 16th December, 1890, and there was no free immigration in the year 1894.

Two hundred and seventy-eight Chinese arrived in and 143 left the colony during 1894, the number of arrivals thus exceeding the departures by 135.

The following table shows the immigration for twenty-one years —stating separately arrivals from the United Kingdom, the Australian Colonies, and other places. The arrivals during 1893 and 1894 will be found to exceed those in any other years comprised in the period except 1874 and 1875, when the numbers were largely swollen by assisted immigrants from the United Kingdom; and it will also be noticed that the years 1893 and 1894 had by far the largest numbers of arrivals from Australia:—

Year.	Arrivals from United Kingdom.			From Australian Colonies.	From Other Places.	Total Arrivals.
	Government or Assisted.	Unassisted.	Total.			
1874 ..	31,774	4,626	36,400	5,504	2,061	**43,965**
1875 ..	18,324	3,444	21,768	6,328	3,641	**31,737**
1876 ..	8,242	2,890	11,132	4,956	2,326	**18,414**
1877 ..	5,298	2,337	7,635	4,500	852	**12,987**
1878 ..	6,580	2,629	9,209	6,348	706	**16,263**
1879 ..	10,311	6,424	16,735	6,413	809	**23,957**
1880 ..	2,689	5,825	8,514	5,899	741	**15,154**
1881 ..	103	3,404	3,507	5,579	602	**9,688**
1882 ..	726	2,479	3,205	6,975	765	**10,945**
1883 ..	5,902	4,496	10,398	8,056	761	**19,215**
1884 ..	3,888	5,972	9,860	9,064	1,097	**20,021**
1885 ..	1,072	6,169	7,241	7,899	1,059	**16,199**
1886 ..	917	5,976	6,893	8,133	1,075	**16,101**
1887 ..	1,286	3,620	4,906	8,035	748	**13,689**
1888 ..	485	3,653	4,138	8,784	684	**13,606**
1889 ..	91	3,184	3,275	11,212	905	**15,392**
1890 ..	144	2,668	2,812	11,539	677	**15,028**
1891 ..	44	2,391	2,435	11,144	852	**14,431**
1892 ..	..	2,555	2,555	14,674	893	**18,122**
1893 ..	..	2,929	2,929	22,351	855	**26,135**
1894 ..	..	2,846	2,846	21,291	1,100	**25,237**

Here the arrivals increase from 15,028 in 1890 to 25,237 in 1894, and those from Australia from 11,539 in the former year to 21,291 in the latter, being nearly twice as many in 1894 as in 1890.

In 1881 an Act was passed imposing a tax on every Chinese landing in the colony, except in the case of any one of the crew of a vessel not intending to remain. The object of the Act—so to hamper Chinese immigration as to prevent the number of Chinese in the colony from increasing—was until last year successfully attained. In 1881 the Chinese population amounted to 5,004, in 1886 the number had fallen to 4,542, and at the census of 1891 there were only 4,444 Chinese in the colony. The estimated number for December, 1894, was 4,145 persons against 4,044 in 1893, the arrivals during 1894 having exceeded the departures and deaths by 101.

The numbers of arrivals and departures of Chinese in each of the past fourteen years were:—

Year.	Arrivals.	Departures.	Year.	Arrivals.	Departures.
1881	1,029	371	1888	308	211
1882	23	168	1889	16	104
1883	44	297	1890	18	169
1884	84	306	1891	5	160
1885	94	164	1892	58	197
1886	239	181	1893	116	134
1887	354	246	1894	278	143

Laws restricting Chinese immigration have been passed in the Australian Colonies as well as in New Zealand.

In New South Wales, an Act of 1888 raised the poll-tax imposed in 1881 to £100, and vessels were prohibited from carrying to the colony more than one Chinese passenger to every 300 tons. Chinese cannot engage in mining without express authority, and are not allowed to become naturalised. The Act is stated to have resulted in the complete stoppage of Chinese immigration.

Every effort is made to obtain correct statements of the migration to and from the colony, but there is still difficulty in regard to the departures. The arrivals are doubtless correct, but many people leave the colony for Australia without booking their passages, paying their fares on board after the steamer has cleared: in these cases the returns from the Customs authorities are deficient. The difficulty is in great measure overcome by an arrangement under which the pursers of the intercolonial steamers belonging to the Union Steamship Company, on their return to this colony, post to the Registrar-General a statement of the number of passengers on the previous outward voyage. But during any period of cheap fares and keen competition between rival companies steamers may carry more passengers than should lawfully be taken, and of the number in excess no return is likely to be made.

The number of persons who left this colony in 1894 was 22,984, of whom 20,737 were over and 2,247 were under twelve years of age. The males numbered 15,708, and the females 7,276. The departures for the United Kingdom amounted to 1,669 persons. 2,897 left for Victoria, 16,955 for New South Wales and Queensland, and 636 for Tasmania — making altogether 20,488 for Australia. 198 persons left for Fiji, and 629 for other ports (including passengers for San Francisco).

The total excess of arrivals over departures—2,253 persons—is made up as under:—

	Excess of Arrivals.
From United Kingdom	1,177
„ Australia	803
„ Fiji	179
„ Other places	94

Comparing the arrivals and departures for 1894 with those of the previous year, it will be observed that, whereas the arrivals fell from 26,135 to 25,237, the departures rose from 15,723 to 22,984. No fewer than 20,488 persons left New Zealand last year for Australia, very many, no doubt, tempted by the rich finds of gold in Western Australia; but, notwithstanding this large exodus, there was (according to the returns) an excess of arrivals in New Zealand from the Continent in the year amounting to 803, so that this colony held its own against Australia in spite of special inducements for miners to leave.

The following table shows the recorded movements of population between New Zealand and the United Kingdom in each of the past ten years:—

	United Kingdom.	
	Arrivals therefrom.	Departures thereto.
1885	7,241	1,857
1886	6,893	2,385
1887	4,906	2,086
1888	4,138	1,964
1889	3,275	2,039
1890	2,812	1,863
1891	2,435	1,705
1892	2,555	1,612
1893	2,929	1,583
1894	2,846	1,669
Totals	40,030	18,763

These figures, which may be taken as correct, show a gain of 21,267 persons through intercourse with the United Kingdom; nevertheless there was during the ten years a loss by excess of departures over arrivals of 2,315 persons. It follows, therefore, that the loss to Australia and other places amounted to 23,582 during the decennial period, of which number at least 90 per cent. must have gone to Australia. The figures for 1892–94 give a different result for the last three years of the decennium, showing a net gain from intercourse with Australia of 13,882 persons. Of the loss prior to 1892, by far the largest amount in any one year occurred in 1888, when the expenditure of loan-money by the General Government was suddenly reduced by one-half.

The returns published by the Board of Trade do not distinguish between the departures from the United Kingdom for New Zealand and those for Australia. Only the departures for Australasia as a whole are given. In 1894 these amounted to 11,151. The number of persons who arrived in New Zealand direct from the United Kingdom was 2,846, or equal to nearly 26 per cent. of the entire direct emigration from the United Kingdom to the Australasian Colonies. This proportion is greater than in any previous year except 1893; but the number does not represent all the persons who come from the United Kingdom to this colony, as many travel by way of the Suez Canal or San Francisco, and thus appear as arrivals either from Australia or foreign ports.

According to the foregoing table the arrivals from the United Kingdom fell in number in regular annual sequence, from 7,241 in 1885 to 2,435 in 1891; but New Zealand has since then somewhat increased her gain of population from the Old Country, the arrivals for 1892 numbering 2,555, for 1893 2,929, and for 1894 2,846 persons, while the departures for the United Kingdom fell year by year from 1889 to 1893, and rose only slightly in 1894. In 1894 the excess of arrivals from the United Kingdom over the departures thereto was as high as 1,177 persons. In 1891 it was only 730 persons.

There has been of late years a large annual decrease in the number of persons who leave the United Kingdom for these southern colonies:—

Year.	Emigration from United Kingdom to Australasia.	Arrivals in New Zealand from United Kingdom.	Arrivals in New Zealand per 100 Departures for Australasia from United Kingdom.
1885	40,689	7,241	17·80
1886	44,055	6,893	15·65
1887	35,198	4,906	13·94
1888	31,725	4,138	13·04
1889	28,834	3,275	11·36
1890	21,570	2,812	13·03
1891	19,957	2,435	12·20
1892	16,183	2,555	15·79
1893	11,412	2,929	25·67
1894	11,151	2,846	25·52

As the population of New Zealand (exclusive of Maoris) comprises no more than 16·54 per cent. of the population of Australasia, not including Fiji, it is evident from the above figures that this colony during 1893 and 1894 offered greater attractions to emigrants than did Australia; and it must be remembered that as remarked before the above numbers do not include persons who arrive from England *viâ* Australia and the United States.

The following shows the immigration and emigration for each of the Australasian Colonies during the year 1894. The emigration figures are, for all the colonies, admittedly imperfect, as no record is obtained of a number of departures by sea:—

Colony.	Arrivals, 1894.	Departures, 1894.	Excess of Arrivals over Departures, 1894.
Queensland	25,247	21,070	4,177
New South Wales	118,397	114,051	4,346
Victoria (by sea only)	84,261	90,110	−5,849*
South Australia	62,399	62,285	114
Western Australia	25,858	9,892	15,966
Tasmania	17,009	16,891	118
New Zealand	25,237	22,984	2,253

VITAL STATISTICS.

BIRTHS.

The births registered in the colony during 1894 numbered 18,528, or at the rate of 27·28 per 1,000 of the mean population. Numerically, the births registered in 1894 are found to be 341 in excess of the number for 1893; nevertheless the birth-rate fell from 27·50 in the former year to 27·28 in the latter. From the year 1884, when the births were 19,846, to 1892, when they numbered only 17,876, there was a regular annual decrease, notwithstanding the increase of population. In 1893 came a change; but the numerical increase in the registrations of births has not been sufficient to raise the birth-rate per 1,000 of the population.

That there should be a continuous fall in the birth-rate of New Zealand is only what might be expected, as the same process is going on in Australia; but the fall here has been greater, and it is noticeable that New Zealand has now a lower birth-rate than any of the colonies of Australia.

The following table shows that, with increasing population and, since 1886, a numerical increase of marriages, there has been for many years an annual decrease in the birth-rate:—

Year.	Mean Population (excluding Maoris).	Number of Marriages.	Number of Births.	Births per 1,000 of the Population.
1881	493,482	3,277	18,372	37·95
1882	509,309	3,600	19,009	37·32
1883	529,292	3,612	19,202	36·28
1884	552,590	3,800	19,846	35·91
1885	573,362	3,813	19,693	34·35
1886	582,117	3,488	19,299	33·15
1887	596,374	3,563	19,135	32·09
1888	605,371	3,617	18,902	31·22
1889	612,716	3,632	18,457	30·07
1890	620,780	3,797	18,278	29·44
1891	629,783	3,805	18,273	29·01
1892	642,245	4,002	17,876	27·83
1893	661,349	4,115	18,187	27·50
1894	679,196	4,178	18,528	27·28

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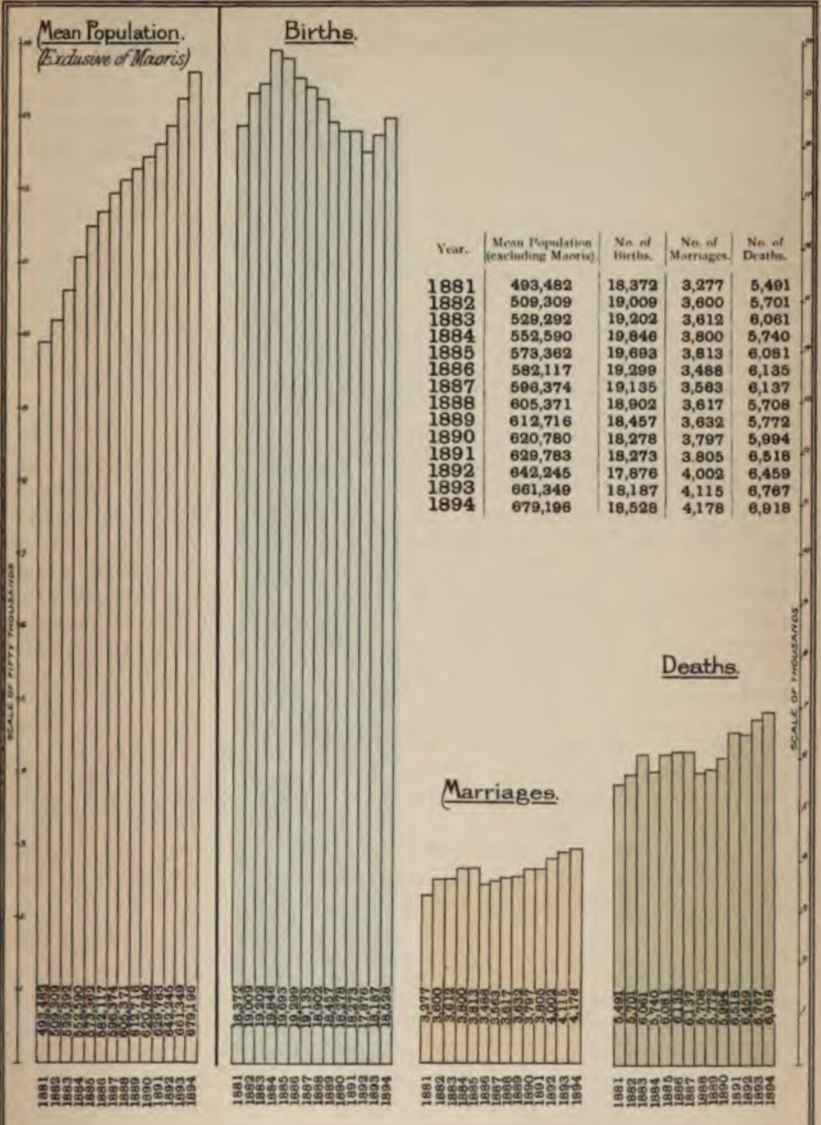
* Excess of departures.



Year.	Mean Population (excluding Maoris).	No. of Births.	No. of Marriages.	No. of Deaths.
1881	493,482	18,372	3,277	5,491
1882	509,309	19,009	3,600	5,701
1883	529,292	19,202	3,612	6,061
1884	552,590	19,846	3,800	5,740
1885	573,362	19,693	3,813	6,081
1886	582,117	19,299	3,488	6,135
1887	596,374	19,135	3,563	6,137
1888	605,371	18,902	3,617	5,708
1889	612,716	18,457	3,632	5,772
1890	620,780	18,278	3,797	5,994
1891	629,783	18,273	3.805	6,518
1892	642,245	17,876	4,002	6,459
1893	661,349	18,187	4,115	6,767
1894	679,196	18,528	4,178	6,918

POPULATION, BIRTHS, MARRIAGES AND DEATHS.

Compared for 14 Years.

T. M. Grant delt.

A fall in the birth-rate in a young country is to a certain point a natural result of the increase in the proportion of the population under twenty-one years of age; but in New Zealand the proportion under twenty-one at the census of 1891 was found to be slightly lower than in 1886, so that there must be further reasons to account for such a decrease in the actual number of births as is found up to the year 1893.

Inquiry was made of District Registrars to discover whether many births escaped registration, through the colony not being sufficiently subdivided for registration purposes; but the replies did not tend to show that the decrease could be assigned to this cause, though it is nevertheless desirable to subdivide further when representations are made of fresh requirements.

Whenever it is reported to the Registrar-General that a birth has not been registered, an authority is issued to the District Registrar to prosecute the responsible party for neglect. Registrars are all under instructions to watch closely for cases of negligence, so that proceedings may be taken. Seventeen convictions were secured in the year 1894, and fines inflicted.

The decrease in the birth-rate all over the civilised world has been freely and openly commented on of late, and the voluntary limitation of families is no doubt largely resorted to in communities where the spread of education has created a high standard of comfort in living, and multiplied wants tenfold. In 1881 there were in New Zealand 5·72 births to every marriage in the previous year, and in 1894 the proportion had fallen to 4·50 births to each marriage.

It was ascertained, after the census of 1881 had been compiled, that the married women of reproductive age in the colony averaged 314 to every 100 of legitimate births, which is equal to an average of one birth to every married woman at the age for child-bearing in every 3·14 years. In 1886 the average was found, on calculation, to be 333 wives to 100 births, or an average of one birth to each wife in 3·33 years. In 1891 there were 17,635 legitimate births, and the number of married women at the time of the census at the period 15 to 45 years was 63,165, which gives an average of 358 wives to each 100 births, or, deducting one child in each case of twins, the average becomes 362 wives to every 100 births, being a birth to each wife every 3·62 years. The census results therefore prove that the average interval between each birth in the case of married women at the child-bearing ages advanced from 3·14 years in 1881 to 3·33 years in 1886, and 3·62 years in 1891; so that this factor must evidently be taken into account in considering the question of the causes of the falling birth-rate.

In the United States the proportions per 1,000 for 1880 and 1890 were respectively 36·0 and 30·7; in England and Wales, 34·2 and 30·2; in Scotland, 33·6 and 30·2; in Ireland, 24·7 and 22·3; in France, 24·5 and 21·8; in Belgium, 31·1 and 28·7; in the German Empire, 37·6 and 35·7; in Austria, 38·0 and 36·7; in Switzerland, 29·6 and 26·6; in Denmark, 31·8 and 30·6; in Norway, 30·7 and 30·3; and in the Netherlands, 35·5 and 32·9.

The fall in the birth-rates of the Australian Colonies during a period of ten years is shown in the following table:—

BIRTH-RATES PER 1,000 OF POPULATION.

Colony.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.
Queensland	36·66	40·21	38·09	37·77	36·27	40·95	36·35	35·84	33·73	31·86
New South Wales ..	37·64	37·03	36·42	36·18	33·73	35·35	34·50	34·41	32·23	31·47
Victoria	30·74	31·23	32·39	32·49	32·95	33·60	33·57	32·54	31·25	29·16
South Australia ..	37·30	35·32	34·63	33·34	32·37	32·75	33·92	32·32	31·71	30·49
Western Australia ..	35·22	39·21	37·34	35·88	37·14	32·55	34·85	33·01	34·14	27·49
Tasmania	35·08	34·15	33·87	33·10	31·94	33·49	33·37	32·48	33·92	31·13
New Zealand	34·35	33·15	32·09	31·32	30·07	29·44	29·01	27·83	27·50	27·28

In the year 1880 New Zealand had the highest birth-rate of any in these colonies, 40·78; but since 1887 the position has been reversed, and the rate is now the lowest of all.

The birth-rates for seven years in Great Britain and certain countries of the European Continent are given from the report of the Registrar-General of England. The rates in England and Wales, and in Scotland, are higher than those in New Zealand, but the rate for Ireland is lower. For 1892 France has the lowest rate of all quoted.

BIRTH-RATES IN EUROPEAN COUNTRIES, 1887 TO 1893.

Countries.	Number of Births per 1,000 of Mean Population.						
	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Hungary	44·1	43·8	43·7	40·3	42·3	40·3	42·5
Austria	38·2	37·9	37·9	36·7	38·1	36·2	..
Italy	39·0	37·6	38·4	35·9	37·3	36·3	36·6
German Empire	36·9	36·6	36·4	35·7	37·0	35·7	36·7
Netherlands	33·7	33·7	33·2	32·9	33·7	32·0	33·8
England and Wales	31·9	31·2	31·1	30·2	31·4	30·5	30·8
Scotland	31·8	31·3	30·9	30·4	31·2	30·8	31·0
Norway	30·8	30·8	29·7	30·3	30·9	29·6	30·7
Sweden	29·7	28·8	27·7	28·0	28·3	27·0	..
Belgium	29·4	29·1	29·5	28·7	29·6	28·9	29·5
Switzerland	27·9	27·7	27·6	26·6	28·3	28·1	28·5
France	23·5	23·1	23·0	21·8	22·6	22·1	..
Ireland	23·1	22·8	22·7	22·3	23·1	22·5	23·0

The male births in New Zealand in 1894 numbered 9,472, and the female 9,056: the proportion was thus 104·59 males to 100 females. In 1893 the proportion was 104·88 males, and in 1892, 103·72. There are on an average more male to female births in each of the Australasian Colonies than in England, but the proportion of male births is still greater in many European countries.

There were 176 cases of twin births (352 children) in 1894; and also two cases of triplets. The number of children born was 18,528; the number of mothers was 18,348: thus on an average 1 mother in every 103 gave birth to twins. In 1893 the proportion was one in 95, in 1892 one in 102, in 1891 one in 101, and in 1890 one in 94.

The births of 704 children were illegitimate: thus 38 in every 1,000 children born were born out of wedlock.

The following table gives the rates of illegitimacy in each of the Australasian Colonies. The rate in New Zealand is less than in any other of the Australasian Colonies except South Australia:—

Proportion of Illegitimate Births in every 100 Births.

Year.	Queensland.	New South Wales.	Victoria.	South Australia.	Western Australia.	Tasmania.	New Zealand.
1885	4·08	4·60	4·36	2·42	..	4·55	3·20
1886	3·97	4·65	4·75	2·38	..	4·13	3·12
1887	4·49	4·59	4·78	2·49	..	3·40	3·23
1888	4·13	5·08	4·80	2·67	..	3·62	3·05
1889	4·68	5·33	4·97	2·47	..	4·02	3·32
1890	4·85	5·26	5·09	2·50	..	4·05	3·30
1891	4·65	5·36	5·36	2·93	..	3·72	3·49
1892	5·05	5·71	5·59	2·93	5·89	4·75	3·32
1893	4·97	6·16	5·46	2·84	4·17	4·41	3·70
1894	4·52	6·14	5·50	3·05	4·66	5·09	3·80

The rates in the Colonies of Queensland, New South Wales, Victoria, Western Australia, and Tasmania are somewhat higher than the rate in England, which was 4·2 in 1893. The rate for New Zealand is less. In Scotland the rate was as high as 7·6 in the year 1890. In Ireland it was only 2·7 in 1891. Of European continental countries Austria has the highest rate, 14·7. In the German Empire it is 9·3, in France 8·1, in Italy 6·8, and in Switzerland 4·6.

An important Act was passed last year, entitled "The Legitimation Act, 1894," which makes provision for the legitimation of children born before marriage on the subsequent marriage of their parents. Under this Act any child born out of wedlock, whose parents afterwards marry, is deemed to be legitimised by such marriage on the birth being registered in the manner prescribed by the Act. For legitimation purposes Registrars must register a birth when called upon to do so by any person claiming to be the father of an illegitimate child; but such person is required to make a solemn declaration that he is the father, and that at the time of the birth there existed no legal impediment to his marriage with the mother of the child. He has also to produce the evidence of his marriage. It will thus be seen that in cases dealt with under the Act registration becomes the test of legitimacy. In the December quarter of 1894, 11 children were legitimised; in the March quarter of 1895 the number was 33. It appears likely that the Act will often be taken advantage of in case of half-castes.

It is held that the average number of children to a marriage may be ascertained by comparing the total of legitimate births for a series of years with the total of marriages during a series of years of the same number, but beginning one year earlier; for, although in the earlier years births will be included that are the fruit of marriages solemnised prior to the commencement of the period, yet there will be omitted the children born subsequently to the period, of parents married within the given time. This method probably gives results approximately true:—

Year.	Marriages.	Legitimate Births.	Proportion of Births to every Marriage solemnised in the Preceding Year.
1889	3,632	..	..
1890	3,797	17,675	4·87
1891	3,805	17,635	4·64
1892	4,002	17,283	4·54
1893	4,115	17,514	4·37
1894	..	18,528	4·50
Sums and proportion (five years)	19,351	88,635	4·58

For the last five years the average number of births per marriage has been 4·58, the number falling during the period from 4·87 to 4·50; at the same time the rate for 1894 is higher than it was in 1893 (4·37). In the Australian Colonies a similar decrease is noticeable. It has been remarked that in all the Australian Colonies, except Tasmania, and possibly New South Wales, the average number of children to a marriage tends to decrease. In Victoria the number for the year 1880 was 4·99, but fell to 3·97 in 1891. In New South Wales the figures are 5·0 for 1880, and a mean of 4·72 for the period 1890–91.

The following statement of the average number of children to a marriage in various European countries is taken from the Victorian Year-book for 1893:—

	Children to each Marriage.		Children to each Marriage.
Ireland	5·46	England ..	4·16
Italy	4·56	Sweden	4·01
Scotland	4·43	Denmark ..	3·55
Holland	4·34	France	2·98
Belgium	4·21		

The excess per cent. of births over deaths in each of the Australasian Colonies for a mean of ten years ending with 1893, is stated in the Victorian Year-book as under:—

EXCESS PER CENT. OF BIRTHS OVER DEATHS.

New Zealand	208	Tasmania	131
South Australia	170	Western Australia ..	116
New South Wales ..	156	Victoria	111
Queensland	142		

For the year 1893 New Zealand again occupies the first place.

NATURALISATION.

Aliens residing in the colony may, on taking the oath of allegiance to Her Majesty, obtain letters of naturalisation entitling them to enjoy all the rights and privileges that a natural-born subject of the United Kingdom can enjoy or transmit within this colony. Chinese seeking naturalisation must pay a fee of £1. Two hundred and fifty-seven aliens were naturalised in 1894.

As the diversity of nationalities is considerable, the following statement is given of the number belonging to each :—

NUMBER OF ALIENS NATURALISED IN 1894.

Natives of			Natives of	
China		96	France	3
German Empire		44	Italy	3
Sweden and Norway		28	Netherlands	3
Syria		28	United States of America	2
Denmark		26	Bulgaria	1
Austria		8	Greece	1
Russia	2	8	Samoa	1
Poland	2			
Finland	4		Total	257
Switzerland		5		

The number of natives of each country naturalised during the last thirteen years is shown hereunder :—

Natives of		Natives of	
Germany	959	Netherlands	27
Sweden and Norway	661	Greece	22
Denmark	499	Portugal	19
China	298	United States of America	13
Switzerland	110	Belgium	11
Russia	107	Other countries	53
Italy	104		
Austria	95	Total	3,026
France	48		

Of the number naturalised in the period 1883–94, natives of China comprised 37·35 per cent., Germany 17·12 per cent., Sweden and Norway 10·90 per cent., Denmark 10·12 per cent., and Syria 10·90 per cent.

By section 2 of "The Aliens Act Amendment Act, 1882," repealed and re-enacted by section 2 of "The Aliens Act Amendment Act, 1892," it is provided that when the father, or mother being a widow, has obtained naturalisation in the colony, every child who during infancy has become resident with them in New Zealand shall be deemed to be naturalised and shall have the rights and privileges of a natural-born subject.

MARRIAGES.

The number of marriages in 1894 was 4,178, an increase of 63 on the number in 1893. The marriage-rate was 6·15 per 1,000 persons living, being higher than that which obtained in 1891 (6·04), but lower than the rates for 1892 and 1893—6·23 and 6·22 respectively. The marriage-rate was lowest in the year 1889 (5·94). Since then it has risen again somewhat; but New Zealand has not so far regained the position she held in 1874. In that year the figures for the Australasian Colonies stood as follow:—

MARRIAGE-RATES IN 1874.

New Zealand ..	.. 8·81	per 1,000 of mean population.
Queensland ..	.. 8·62	„ „
South Australia ..	.. 8·00	„ „
New South Wales	.. 7·70	„ „
Western Australia	.. 6·96	„ „
Tasmania ..	.. 6·83	„ „
Victoria ..	.. 6·33	„ „

The respective rates for the Australasian Colonies for the last ten years are shown in the following table:—

MARRIAGES PER 1,000 OF THE POPULATION.

Year.	Queensland.	New South Wales.	Victoria.	South Australia.	Western Australia.	Tasmania.	New Zealand.
1885 ..	8·93	8·18	7·72	7·66	7·51	7·97	6·65
1886 ..	8·67	7·99	7·84	6·24	7·98	7·26	5·99
1887 ..	8·21	7·42	7·62	6·31	7·58	6·71	5·97
1888 ..	8·63	7·37	8·03	6·70	7·18	6·58	5·97
1889 ..	8·37	6·76	8·14	6·47	6·99	6·50	5·94
1890 ..	8·49	7·14	8·21	7·06	5·80	6·64	6·12
1891 ..	7·18	7·39	7·69	7·31	8·00	6·63	6·04
1892 ..	6·67	6·77	6·64	6·51	7·29	6·51	6·23
1893 ..	5·91	6·40	5·99	6·26	6·34	5·51	6·22
1894 ..	5·70	6·20	5·99	6·09	6·24	5·43	6·15

Taking this range of years, the marriage-rate is shown to be less in New Zealand than in the colonies of Australia, and it is also lower than in most European countries.

MARRIAGES IN EVERY 1,000 OF THE POPULATION.

Hungary,	1893	.. 9·3	Switzerland,	1893 ..	.. 7·3
German Empire,	„	.. 7·9	Denmark,	„ ..	.. 7·0
Austria,	1892	.. 7·8	Scotland,	„ ..	.. 6·6
Belgium,	1893	.. 7·6	Norway,	„ ..	.. 6·4
France,	1892	.. 7·6	Sweden,	1892 ..	.. 5·7
England and Wales,	1893	.. 7·3	Spain,	1887 ..	.. 5·5
Italy,	„	.. 7·3	Ireland,	1893 ..	.. 4·7
Netherlands,	„	.. 7·3			

The greatest number of marriages in 1894 occurred in the autumn quarter, ending the 30th June, and the smallest number in the winter quarter, ending the 30th September.

Of the marriages solemnised in 1894, 3,669 were between bachelors and spinsters, 179 between bachelors and widows, 227 between widowers and spinsters, and 103 between widowers and widows. Divorced men and women have been classified as bachelors or spinsters: 8 divorced men and 2 divorced women were married during the year.

The proportion of each class of marriage to all the marriages varies but little from year to year, as shown by the figures for 1888 and 1894.

PROPORTION PER 100 MARRIAGES.

Marriages between	1888.	1894.
Bachelors and spinsters	86·04	87·82
Bachelors and widows	4·75	4·28
Widowers and spinsters	6·47	5·43
Widowers and widows	2·74	2·47
	100·00	100·00

The number given above does not include marriages where both parties are of the aboriginal native race, such persons being exempted from the necessity of complying with the provisions of the Marriage Act, although at liberty to take advantage thereof. Only 10 marriages in which both parties were Maoris were contracted in 1894 in terms of the Act.

Of the marriages in the past year, 22·86 per cent. were solemnised by ministers of the Church of England, 25·30 per cent. by ministers of the Presbyterian Churches, 15·99 per cent. by ministers of the Wesleyan and other Methodist Churches, 10·08 per cent. by ministers of the Roman Catholic Church, 6·65 per cent. by ministers of other denominations, and 19·12 per cent. by Registrars.

The following shows the proportions of marriages by ministers of the principal denominations in the past seven years, and the percentages of these denominations to the total population :—

Denomination.	Percentage of Marriages.							Percentage of Denomination to Total Population in 1891.
	1888.	1889.	1890.	1891.	1892.	1893.	1894.	
Church of England ..	21·95	23·11	21·66	22·18	20·78	23·06	22·86	40·51
Presbyterians ..	24·33	26·75	27·59	27·23	29·38	26·58	25·30	22·62
Wesleyans and other Methodists	14·10	15·08	15·58	14·72	14·82	16·13	15·99	10·14
Roman Catholics ..	11·69	10·40	10·45	10·07	9·74	8·99	10·08	13·96
Other denominations	5·70	5·23	5·27	5·67	6·34	6·66	6·65	12·77
By Registrars ..	22·23	19·43	19·45	20·13	18·94	18·58	19·12	
	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

It will be observed that the proportions of marriages by ministers of the Presbyterian and Wesleyan Churches are greater than the percentages of these denominations to the total population. Clearly, therefore, among the persons married by them are included members of other religious bodies, while many of those married before Registrars must be nominally members of the Church of England. As all marriages between members of the Roman Catholic Church are, by requirement of that church, solemnised by the ministers thereof, it appears that fewer marriages in proportion to their numbers occur among Roman Catholics than among members of other bodies. The percentage of marriages (10·08) solemnised by the Roman Catholic clergy in 1894, although higher than in any one of the years 1891–93, was yet much below the proportion borne by Roman Catholics to the total population—viz., 13·95 at the census of 1886, and 13·96 in 1891. Marriages by Registrars, which increased from 10·50 per cent. in 1875 to 23·22 per cent. of the total in 1887, were 19·12 per cent. in 1894.

Of the men married in 1894, 43, or 10·29 in every 1,000, and of the women 63, or 15·08 in every 1,000, signed the register by marks.

The illiteracy of the people, as measured by the proportion of married persons who affix marks instead of signatures to the marriage register, has greatly decreased of late, having fallen since 1881 about 64 per cent. among men, and about 66 per cent. among women. This is shown in a very striking manner by the following table:—

PERSONS IN EVERY 1,000 MARRIED WHO SIGNED BY MARK.

Denomination.	1881.		1886.		1890.		1894.	
	M.	F.	M.	F.	M.	F.	M.	F.
Church of England	16·59	27·15	9·33	12·00	6·08	4·86	5·24	6·28
Presbyterians ..	10·25	29·61	9·79	7·62	8·59	15·27	6·62	6·62
Wesleyan and other Methodists	32·41	41·79	6·33	14·78	15·20	10·14	7·49	8·98
Roman Catholics ..	117·78	133·33	46·45	65·57	35·26	42·82	19·00	28·50
Other denominations	10·36	20·72	11·49	22·99	15·00	0·00	3·60	14·39
By Registrars ..	39·22	93·51	35·98	62·03	29·77	40·60	21·28	35·04
Total marriages	32·04	50·20	19·21	28·96	16·33	19·23	10·29	15·08

The proportion of illiterates in 1894 was greatest among those married before Registrars, but it must be remembered that, as previously stated, a large proportion of the persons married before Registrars are nominally members of the Church of England. Previously the proportion was largest among Roman Catholics; but since 1881 it has, as shown by the table, most remarkably decreased.

Of the persons married in 1894, 60 bridegrooms and 816 brides were under 21 years of age—7 of the bridegrooms were between 18 and 19. Of the brides, 289 were under 19: of these, 2 were between 15 and 16, and 23 between 16 and 17 years of age. The proportion of men married is greatest at the ages of 25 to 30, and of women at from 21 to 25 years.

The following are the proportions of men and women married at each age-period to every 100 marriages in the years 1888 and 1894:—

Age.	1888.		1894.	
	M.	F.	M.	F.
Under 21 years	1·85	24·30	1·44	19·53
21 and under 25	28·17	42·05	26·45	42·25
25 " 30	33·81	21·15	36·74	23·84
30 " 40	26·02	8·98	25·82	10·99
40 " 50	6·69	2·74	6·25	2·27
50 " 60	2·52	0·61	2·49	0·86
60 " 70	0·88	0·14	0·67	0·19
70 and upwards	0·06	0·03	0·14	0·07

Registrars of Marriages are prohibited by law from issuing certificates for the marriage of minors without the consent of their parents or lawful guardians, if there be any in the colony. If a declaration be made in any case that there is no parent or lawful guardian in the colony, then a certificate may be issued after the expiration of fourteen days following the date on which the notice of intended marriage is given.

A marriage may not be solemnised except after the delivery to the minister or Registrar who officiates of a certificate issued by a Registrar authorising such marriage, and if any persons knowingly and wilfully intermarry without such certificate the marriage is null and void; and no clergyman or minister of any denomination is empowered to solemnise marriages until his name has been placed on the Registrar-General's list of officiating ministers for the year.

The ages at which persons may contract binding marriages are the same as in England—12 years for females and 14 for males. Marriage may be contracted at earlier ages than those stated, but would be voidable at the discretion of either of the parties upon reaching the age of 12 or 14, as the case may be, and without the necessity of proceedings in Court.

Although in New Zealand the age at which girls may legally marry is as above, nevertheless by the criminal law to unlawfully carnally know a girl under the age of 15 years is a punishable offence, and this age will probably be raised to 16.

The ages at which persons can contract binding marriage in the United States are 21 for males and 18 for females, according to the "Annual Statistician" (McCarty, San Francisco). In France and Belgium the ages are 18 and 15 respectively; in Germany, 18 and 14; in Austria, 14 and 14; and in Russia, 18 and 16.

The average age of the men married in this colony in 1894 was 29·79 years, and of the women, 25·23 years. In England the mean age of those whose ages were stated was (in the year 1893) 28·51 years for men, and 26·23 years for women. Thus the average age at marriage in the colony is higher for men, but lower for women, than the age in England.

The proportion of bridegrooms under 21 is much greater in England than in New Zealand; but the proportion of brides under 21 is much greater in the colony.

In England, in 1893, of every 1,000 bridegrooms whose ages were stated, 56 were under 21 years of age, and of every 1,000 brides 187 were under 21 years of age. In New Zealand, in 1894, the proportions were 14 bridegrooms and 195 brides in every 1,000 married. While in New Zealand the proportion of bridegrooms under 21 years of age fluctuates within narrow limits, the proportion of brides under 21 years of age is steadily decreasing: this is shown by the following proportions for each sex under 21 years of age in every 100 married:—

Year.	Bridegrooms under 21 in every 100.	Brides under 21 in every 100.	Year.	Bridegrooms under 21 in every 100.	Brides under 21 in every 100.
1883	.. 1·52	.. 27·18	1889	.. 1·62	.. 23·02
1884	.. 1·87	.. 27·10	1890	.. 1·89	.. 22·75
1885	.. 1·97	.. 26·49	1891	.. 1·55	.. 20·79
1886	.. 1·95	.. 26·09	1892	.. 1·62	.. 20·14
1887	.. 1·91	.. 25·49	1893	.. 1·75	.. 19·73
1888	.. 1·85	.. 24·30	1894	.. 1·44	.. 19·53

DEATHS.

The deaths in 1894 numbered 6,918, being equivalent to a rate of 10·19 in every 1,000 persons living. This is lower than the rate (10·23) in 1893, but higher than in 1892 (10·06). In 1891 the rate was 10·35. In each of the years, 1888, 1889, 1890, the rate was under 10 per 1,000.

The death-rate in New Zealand contrasts very favourably with those in the other Australasian Colonies and in European countries, and shows how healthful is the climate of the colony. The following table gives the death-rates for a series of years in the several countries named:—

Country.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.
New Zealand	10·76	10·54	10·29	9·43	9·44	9·66	10·35	10·06	10·23	10·19
Queensland	19·58	17·29	14·56	14·66	15·44	14·98	12·77	12·66	13·34	12·08
New South Wales ..	16·41	14·89	13·15	13·54	13·42	12·90	14·24	13·22	13·25	12·30
Victoria	14·98	15·15	15·70	15·34	17·54	16·10	16·24	13·63	14·11	13·13
South Australia* ..	12·48	13·38	12·77	12·52	11·49	12·40	13·26	11·38	13·42	11·64
Western Australia ..	17·61	21·56	16·83	15·91	14·19	11·26	16·96	16·63	15·27	14·00
Tasmania	15·40	14·58	15·45	14·11	14·10	14·74	15·00	13·53	13·47	12·43
England	19·0	19·3	18·8	17·8	17·9	19·5	20·2	19·0	19·2	..
Scotland	19·1	18·6	18·7	17·6	18·0	19·7	20·7	18·5	19·4	..
Ireland	18·4	17·9	18·3	18·0	17·5	18·2	18·4	19·4	17·9	..
Denmark	17·9	18·2	18·3	19·7	18·6	19·0	20·0	19·4	18·9	..
Norway	16·5	16·1	16·0	16·9	17·4	17·9	17·5	17·7	16·4	..
Sweden	17·8	16·6	16·1	16·0	16·0	17·1	16·8	17·9	..	..
Austria	29·9	29·4	28·9	29·2	27·3	29·4	27·9	28·8	..	..
Hungary	31·6	31·4	33·5	31·7	29·9	32·4	33·1	35·0	31·1	..
Switzerland	21·3	20·7	20·2	19·9	20·3	20·9	20·7	19·3	20·5	..
German Empire ..	25·7	26·2	24·2	23·8	23·8	24·4	23·4	24·1	24·6	..
Netherlands	21·0	21·5	19·7	20·4	20·1	20·5	20·7	21·0	19·2	..
France	21·9	22·5	22·0	21·8	20·5	22·6	22·6	22·6	..	..
Italy	26·6	28·3	27·5	27·0	24·9	26·4	26·2	26·3	25·3	..

* Excluding Northern Territory.

A comparison of the above rates appears to place the Australasian Colonies as a whole in the foremost rank for salubrity of climate and healthiness of people, New Zealand standing well in front of the rest; but it must be admitted that the ratio of all deaths to the 1,000 of population living in the middle of the year, although a good test of the sanitary condition of any one country year by year, and also useful for comparing the healthfulness of such countries as contain the same or nearly the same proportionate numbers of persons living at each age-period of life, cannot be regarded as a perfectly fair index when new countries are compared with old, or even when new countries are compared one with another, should the proportions living at the several age-periods vary considerably.

The truest rates of mortality are obtained by ascertaining the proportion of deaths at each age-period to the numbers living at those ages.

Deaths and Death-rates of Four Principal Cities.

In previous annual reports on the vital statistics of the four chief towns the central boroughs alone were dealt with, particulars respecting the suburbs not having been obtained. But this omission was held to be a grave defect, as the suburban death-rate may differ much from the death-rate at the centre. Steps were therefore taken early in 1894 to collect statistics of the suburban boroughs as well as of the four chief cities. As regards Auckland and Christchurch, the whole of the area usually recognised as suburban has not yet been brought under municipal government, and the statistics given below do not deal with such portions as still remain in road districts. The omission, however, is not very important, for there are in either case quite enough suburbs included within borough boundaries to give a fair idea of the death-rate of greater Auckland and greater Christchurch. As further boroughs are formed the vital statistics will be made to include them.

The total number of deaths registered in 1894 as occurring in the four chief towns, with their suburban boroughs, was 1,964—viz., 1,354 in the cities and 610 in the suburbs.

By including the suburbs the death-rate for the year is lowered at each of the four centres, the difference being considerable in Auckland (1·30) and in Dunedin (1·20). The rates for the year are,—

	Death-rate per 1,000 of Population.	
Auckland City	15·41	
„ and five suburban boroughs ..		14·11
Wellington City	11·82	
„ and three suburban boroughs ..		11·43
Christchurch City	10·55	
„ and four suburban boroughs ..		10·19
Dunedin City	11·38	
„ and eight suburban boroughs ..		10·18

The death-rate is thus shown to be highest in Auckland and lowest in Dunedin, Wellington and Christchurch taking second and third places respectively. The death-rate for the colony is 10·19 per 1,000 of mean population; and it is worthy of note that in Dunedin the rate is even lower (10·18) than this, while at Christchurch it is exactly the same.

The death-rates for Auckland and Wellington are considerably higher than those for Dunedin and Christchurch, but in the two North Island cities the birth-rates are also higher, and, as the mortality among infants is always greater than among adults, a high birth-rate will generally increase the death-rate. If the number of deaths of infants under one year be excluded, the mortality among the rest of the population would be in the following ratio to the 1,000 living:—

Auckland (including suburbs)	10·50
Wellington „	8·98
Christchurch „	7·85
Dunedin „	8·80

Excluding the suburbs, the deaths registered in 1894 (1,354) at the four chief centres were 20 below the number for 1893 (1,374), and 103 in excess of the number for 1892 (1,251). The decrease on the figures for 1893 is sufficiently accounted for by the cessation of the measles epidemic. The deaths and death-rates for three years are given:—

—	Deaths, 1892.		Deaths, 1893.		Deaths, 1894.	
	No.	Per 1,000 of Population.	No.	Per 1,000 of Population.	No.	Per 1,000 of Population.
Auckland ..	382	12·52	404	12·90	484	15·41
Wellington ..	405	12·27	462	13·43	414	11·82
Christchurch ..	197	11·89	219	12·80	185	10·55
Dunedin ..	267	11·59	289	12·26	271	11·38

The rate at Auckland is shown by the above figures to have been higher in 1894 than in 1893 and 1892, while the rates at Wellington, Christchurch, and Dunedin were lower last year than in either of the two previous years.

Excluding the infantile mortality, the death-rate of Auckland still stands as the highest in 1894, but Dunedin takes second, Wellington third, and Christchurch the last place.

	Deaths per 1,000 of Population, excluding Infants (under One Year of Age).		
	1892.	1893.	1894.
Auckland (excluding suburbs)	9·05	9·66	11·53
Wellington „ ..	9·32	10·26	9·40
Christchurch „ ..	8·51	9·24	8·69
Dunedin „ ..	9·51	10·18	9·66

The degree of infantile mortality may be exhibited in the proportion of deaths of children under one year of age to every 100 births. The results for five years are given, showing that the mean rate is highest at Christchurch and lowest at Dunedin, and less at Wellington than at Auckland. For the year 1894 the rate is highest at Auckland; Wellington, Christchurch, and Dunedin following in the order named.

	Deaths of Children under One Year to every 100 Births.					
	1890.	1891.	1892.	1893.	1894.	Mean of Five Years.
Auckland (excluding suburbs) ..	9·89	13·36	14·28	12·64	15·12	13·06
Wellington " ..	9·77	12·14	11·50	12·26	9·49	11·03
Christchurch " ..	11·94	12·71	16·81	18·60	9·00	13·81
Dunedin " ..	8·22	9·87	9·51	11·16	8·73	9·50

A comparison of the death-rates of the chief towns of New Zea-for 1894 with those of Australian capitals shows the rates in this colony to be generally lower:—

Principal Cities.	Deaths per 1,000 of Population. 1894.	Principal Cities.	Deaths per 1,000 of Population. 1894.
Perth (including suburbs) ..	21·76	Brisbane (including suburbs)	12·47
Hobart " ..	18·53	Auckland " ..	14·11
Melbourne " ..	15·53	Wellington " ..	11·43
Sydney " ..	14·12	Christchurch " ..	10·19
Adelaide " ..	13·84	Dunedin " ..	10·18

VITAL STATISTICS OF AUSTRALASIAN CAPITALS, 1894.

Chief Cities (including Suburbs).	Mean Population.	Births.		Deaths.		Excess of Births over Deaths.
		Total Number.	Rate per 1,000 of Population.	Total Number.	Rate per 1,000 of Population.	
Melbourne	442,110	13,672	30·92	6,864	15·53	6,808
Sydney	422,315	13,367	31·65	5,961	14·12	7,046
Adelaide	141,606	4,340	30·65	1,960	13·84	2,380
Brisbane	94,000	3,261	34·69	1,172	12·47	2,089
Perth	14,063	552	39·25	306	21.76	246
Hobart	34,368	1,034	30·09	637	18·53	397
Wellington	38,503	1,101	28·60	440	11·43	661

Deaths in the Colony at Various Age-periods.

Of the persons who died in 1894, 374 men and 257 women were at or over 75 years of age. Of these, 211 men and 118 women were under 80 years of age, 95 men and 88 women between 80 and 85, 56 men and 37 women from 85 to under 90, 10 men and 12 women from 90 to 95, 2 men and 2 women between 95 and 100 years.

The combined ages of all the males who died amounted to 145,205 years, and of the females to 91,040 years, giving an average age at death of 36·64 years for the males and 31·59 years for the females.

The average age at death of persons of either sex, in each of the past five years, was as follows:—

	Males.	Females.
1890	33·81 years	28·62 years.
1891	33·11 „	29·25 „
1892	32·97 „	28·95 „
1893	31·86 „	27·79 „
1894	36·64 „	31·59 „

It will be observed that the average age fell in 1893, and rose again last year with almost startling suddenness. But on comparing the figures for the two years it is found that in 1893 the measles epidemic carried off 525 persons, of whom 382 were children under 5 years of age. Last year there were no more than 14 deaths from measles (8 under 5), and the total number of deaths of children under 5 fell in consequence from 2,371 to 2,003. At the same time the deaths at 50 years and upwards increased from 2,091 to 2,519.

More males than females are born annually, and more male than female infants die in proportion to the number of each sex born. In 1894 the number of male children born was 9,472, and the number of deaths of male infants under one year of age was 845, being at the rate of 89 in every 1,000 born; the number of females born was 9,056, and the number that died under one year of age was 662, being in the proportion of 73 in every 1,000 born.

Subjoined is a classified statement of the deaths of infants under one year during 1894, with the ratio of the deaths in each class to the 1,000 births during the year:—

Year	Sex.	Under 1 Month.	1 and under 3 Months.	3 and under 6 Months.	6 and under 12 Months.	Total under 12 Months.
		NUMBER OF DEATHS.				
1894 ..	Male	320	163	172	190	845
	Female	237	129	152	144	662
		DEATHS TO THE 1,000 BIRTHS.				
1894 ..	Male	33·78	17·21	18·16	20·06	89·21
	Female	26·17	14·24	16·79	15·90	73·10

It will be seen from these figures that the chances of living during the first year of age are far greater in favour of female than of male infants. Thus, during the year 1894 there were—

100	deaths of males to	74	deaths of females	under 1 month of age;
100	„	79	„	from 1 to 3 months of age;
100	„	88	„	from 3 to 6 months of age;
100	„	76	„	from 6 to 12 months of age;
100	„	78	„	under 12 months of age.

The rates of infantile mortality—that is, the proportion the deaths of children under one year of age bear to the births—are higher in the Australian Colonies than in New Zealand. The following table gives the rate in the several colonies named for each of the ten years 1883–92:—

NUMBER OF DEATHS OF CHILDREN UNDER ONE YEAR OF AGE TO EVERY 100 BIRTHS.

Year.	Queensland.	New South Wales.	Victoria.	South Australia.	Tasmania.	New Zealand.
1883 ..	13·34	11·48	11·44	14·56	12·39	10·39
1884 ..	14·74	12·62	11·37	13·42	9·90	7·93
1885 ..	14·85	13·12	12·57	11·34	11·26	8·92
1886 ..	12·59	12·85	12·73	12·62	10·48	9·84
1887 ..	11·29	10·59	13·00	11·12	10·09	9·38
1888 ..	12·07	11·09	12·75	9·59	9·43	7·07
1889 ..	13·62	12·50	15·21	9·42	10·64	7·89
1890 ..	10·05	10·45	11·74	9·65	10·55	7·87
1891 ..	10·12	11·89	12·62	9·09	9·45	9·12
1892 ..	10·68	10·60	10·68	9·67	9·91	8·92

Infantile mortality is as a rule greatest in large towns, where the population is dense and the sanitary conditions are less favourable than in country districts. The absence in New Zealand of any such large centres of population as are found in some of the Australian Colonies may partially account for the lower rates of infantile mortality in this colony.

Death-rates of Married Men and Orphanhood of Children.

"The Registration of Births and Deaths Act Amendment Act, 1882," requires that on the registration of the death of any person the age of each living child of the deceased shall be entered in the register. The particulars so recorded for several years have been tabulated, and the detailed results are shown in the two tables on pages 62 and 63 of the "Statistics of New Zealand, 1894." One of those tables deals with the year 1894 only; the other gives the aggregate results for the five years 1890 to 1894 inclusive. They show the total number of men who died at each year of age from 20 to 65, the number of married men (husbands and widowers) stated in the registers to have died childless, the number who died leaving children, and the number and ages of the children so left.

From the first of these tables it is found that during 1894 there died 1,782 men between the ages of 20 and 65, of whom 957 were married; 805 married men left children at their deaths, while 152 are stated to have been childless. The proportions of married men and bachelors in every 100 males dying were 53·70 and 46·30 respectively. The proportions at the census of 1891 for the total number living at the above ages were: Married men, 56·81 per cent.; bachelors, 42·92 per cent.; and unspecified, 0·27 per cent.

The difference here shown would seem to prove that the death-rate amongst married men at the ages under review is lighter than amongst bachelors; but it must be borne in mind that when registering a death the informant is not always in possession of full particulars as to the conjugal condition of the deceased, and that therefore the number of married men as shown in the tables may be somewhat short of the actual fact.

Assuming the ratio of married men at 20 to 65 to the total male population at those ages to be the same in 1894 as at the census of 1891, the death-rate among married men is found to be 9·68 per 1,000 living, whereas the rate for all men at the same age-period was in 1894 10·61 per 1,000.

Ages.	1891			1894.		
	Total Number of Males living at each Age-period.	Total Number of Male Deaths.	Death-rate per 1,000 living.	Estimated Number of Married Men (and Widowers) living.	Number of Deaths of Married Men.	Death-rate per 1,000 living.
20–25 ..	28,337	148	5·22	2,541	6	2·36
25–30 ..	23,704	108	4·56	9,460	37	3·91
30–35 ..	22,021	114	5·18	14,044	59	4·20
35–40 ..	20,513	139	6·78	15,457	100	6·47
40–45 ..	17,755	139	7·83	13,815	93	6·73
45–50 ..	17,028	183	10·75	13,940	102	7·32
50–55 ..	16,770	272	16·22	13,903	160	11·51
55–60 ..	10,945	252	23·02	9,180	192	20·91
60–65 ..	7,685	227	29·54	6,491	208	32·04
	164,758	1,582	9·60	98,831	957	9·68

Here the death-rate for married men (9·68) must not be compared with the death-rate for all men at the same age-period found to obtain in 1891 (9·60), but with the same rate for 1894 (10·61).

The total number of children left by the 957 married men who died in 1894 was 3,892. Of these, 1,679 were under 15 years of age, 743 between 15 and 21, and 1,359 over 21, leaving 111 about whom no information could be obtained. Thus the average number of children of all ages left by each married man dying between 20 and 65 is 4·07, or 1·75 under 15, 0·78 between 15 and 21, 1·42 over 21 years of age, and 0·12 of unspecified age. Discarding the number (152) of fathers said to have died childless, the average number of children left by each of the others is 4·83 of all ages—2·08 under 15, 0·92 between 15 and 21, 1·69 over 21, and 0·14 of unspecified age. Very similar results are obtained if the figures for the five years 1890–94 be used instead of those for 1894 only.

Ages.	Estimated Number of Husbands and Widowers living in 1894.	Total Number of Male Deaths.	Number of Married Men who died.		Number and Ages of Children left.				
			Childless.	Leaving Children.	Under 15.	15 to 21.	21 and upwards.	Unspecified.	Total.
20–25	2,541	152	1	5	6	..	..	..	6
25–30	9,460	137	15	22	41	..	..	..	41
30–35	14,044	138	10	49	121	..	..	4	125
35–40	15,457	187	19	81	270	6	..	11	287
40–45	13,815	151	19	74	289	41	3	3	336
45–50	13,940	161	11	91	274	121	46	13	454
50–55	13,903	258	28	132	307	180	201	30	718
55–60	9,180	279	25	167	234	219	448	14	915
60–65	6,491	319	24	184	137	176	661	36	1,010
	98,831	1,782	152	805	1,679	743	1,359	111	3,892

An important fact brought out by the statistics quoted above is that every year upwards of 1,500 children under 15 years of age are left fatherless—how many without adequate means of living it is not possible to say.

Causes of Death.

The deaths registered during the last five years, when distributed among the several classes according to their assigned causes, give the rates shown hereunder:—

Causes of Death.	Rate per 10,000 living.				
	1890.	1891.	1892.	1893.	1894.
Zymotic diseases	13·26	17·38	15·67	17·95	14·12
Parasitic diseases	0·32	0·21	0·42	0·36	0·32
Dietetic diseases	0·74	0·98	1·31	1·07	0·63
Constitutional diseases	17·19	16·89	17·61	17·56	19·42
Developmental diseases	7·68	7·43	7·83	7·65	8·04
Local diseases	44·33	47·48	45·16	46·40	45·22
Violence	8·39	8·03	8·24	8·24	10·26
Ill-defined and not-specified causes ..	4·64	5·08	4·34	3·09	3·84
All causes	96·55	103·48	100·58	102·32	101·85

The fall in deaths by zymotic disease is due to the disappearance of measles; the rise in deaths by violence to the loss of the s.s. "Wairarapa."

The following statement gives the number of deaths for 1894 according to the various classes of disease, the proportion of deaths in each class and order to the total number of deaths, and the proportion of deaths in each class and order per 10,000 living in 1894:—

Causes of Death.	Number of Deaths.			Proportion to Total Deaths.			Proportion per 10,000 living, 1894.	Proportion per 10,000 living, 1893.
	Male.	Female.	Total.	Male.	Female.	Total.		
Class I. Specific febrile or zymotic diseases,—				Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Order 1. Miasmatic diseases	338	321	659	8·43	11·04	9·53	9·70	13·87
" 2. Diarrhœal diseases	124	83	207	3·09	2·86	2·99	3·05	2·92
" 3. Malarial diseases	3	1	4	0·08	0·03	0·06	0·06	0·06
" 4. Zoogenous diseases	...	1	1	...	0·03	0·01	0·02	...
" 5. Venereal diseases	17	11	28	0·42	0·38	0·40	0·41	0·30
" 6. Septic diseases	15	45	60	0·37	1·55	0·87	0·88	0·80
Total Class I.	497	462	959	12·39	15·89	13·86	14·12	17·95
Class II. Parasitic diseases	16	6	22	0·40	0·21	0·32	0·32	0·36
Class III. Dietetic diseases	28	15	43	0·70	0·52	0·62	0·63	1·07
Class IV. Constitutional diseases	708	611	1,319	17·65	21·02	19·06	19·42	17·56
Class V. Developmental diseases	298	248	546	7·43	8·53	7·89	8·04	7·65
Class VI. Local diseases,—								
Order 1. Diseases of nervous system	382	277	659	9·52	9·53	9·53	9·70	11·31
" 2. Diseases of organs of special sense	7	9	16	0·18	0·31	0·23	0·24	0·15
" 3. Diseases of circulatory system	379	182	561	9·45	6·26	8·11	8·26	7·86
" 4. Diseases of respiratory system	505	353	858	12·59	12·14	12·40	12·63	13·70
" 5. Diseases of digestive system	323	280	603	8·05	9·63	8·72	8·88	8·18
" 6. Diseases of lymphatic system	9	7	16	0·22	0·24	0·23	0·24	0·22
" 7. Diseases of urinary system	142	68	210	3·54	2·34	3·04	3·09	2·98
" 8. Diseases of reproductive system,—								
(a.) Of organs of generation	...	34	34	...	1·17	0·49	0·50	0·56
(b.) Of parturition	...	73	73	...	2·51	1·06	1·07	0·82
" 9. Diseases of locomotive system	16	7	23	0·40	0·24	0·33	0·34	0·32
" 10. Diseases of integumentary system	11	7	18	0·28	0·24	0·26	0·27	0·30
Total Class VI.	1,774	1,297	3,071	44·23	44·61	44·40	45·22	46·40
Class VII. Violence,—								
Order 1. Accident or negligence	479	138	617	11·94	4·75	8·92	9·09	7·12
" 2. Homicide	6	1	7	0·15	0·03	0·10	0·10	0·04
" 3. Suicide	50	14	73	1·47	0·48	1·06	1·07	1·06
" 4. Execution	...	...	...	...	...	...	...	0·02
Total Class VII.	544	153	697	13·56	5·26	10·08	10·26	8·24
Class VIII. Ill-defined and not-specified causes	146	115	261	3·64	3·96	3·77	3·84	3·09
Grand totals	4,011	2,907	6,918	100·00	100·00	100·00	101·85	102·32

The following table exhibits the number of deaths in 1894 from each specific disease :—

CAUSES OF DEATH.

Class.	Causes of Death.	Males.	Females.	Total.
	Orders and Diseases.			
I.—SPECIFIC FEBRILE OR ZYMOTIC DISEASES.	ORDER 1.—*Miasmatic.*			
	Small-pox	...	...	...
	Chicken-pox	...	1	1
	Measles	7	7	14
	Epidemic rose-rash, rubeola	...	...	...
	Scarlet fever, scarlatina	1	4	5
	Typhus	1	...	1
	Dengue	...	...	...
	Relapsing fever	...	...	...
	Influenza	114	119	233
	Whooping-cough	92	98	190
	Mumps	...	...	...
	Diphtheria	43	49	92
	Cerebro-spinal fever	...	...	...
	Simple and ill-defined fever	4	4	8
	Enteric fever, typhoid	76	39	115
	Other miasmatic diseases	...	...	...
	Total Order 1	338	321	659
	ORDER 2.—*Diarrhœal.*			
	Simple cholera	9	5	14
	Diarrhœa	101	69	170
	Dysentery	14	9	23
	Total Order 2	124	83	207
	ORDER 3.—*Malarial.*			
	Remittent fever	3	...	3
	Ague	...	1	1
	Beriberi	...	...	...
	Total Order 3	3	1	4
	ORDER 4.—*Zoogenous.*			
	Hydrophobia	...	...	...
	Glanders	...	...	...
	Splenic fever	...	...	...
	Cow-pox and other effects of vaccination	...	1	1
	Total Order 4	...	1	1
	ORDER 5.—*Venereal.*			
	Syphilis	10	11	21
	Gonorrhœa, stricture of urethra, ulcer of groin	7	...	7
	Total Order 5	17	11	28
	ORDER 6.—*Septic.*			
	Phagedæna	...	...	...
	Erysipelas	7	4	11
	Pyæmia, septicæmia	8	3	11
	Puerperal fever, pyæmia, septicæmia	...	38	38
	Total Order 6	15	45	60
	Total Class I.	497	462	959

Class.	Causes of Death.	Males.	Females.	Total.
	Orders and Diseases.			
II.—PARASITIC DISEASES.	Thrush	8	1	9
	Other diseases from vegetable parasites	...	...	...
	Hydatid disease	6	3	9
	Worms	2	2	4
	Other diseases from animal parasites	...	...	...
	Total Class II.	16	6	22
III.—DIETETIC DISEASES.	Starvation	...	...	...
	Want of breast-milk	6	9	15
	Scurvy	...	...	...
	Intemperance—			
	Chronic alcoholism	14	6	20
	Delirium tremens	8	...	8
	Other dietetic diseases	...	...	...
	Total Class III.	28	15	43
IV.—CONSTITUTIONAL DISEASES.	Rheumatic fever	14	25	39
	Rheumatism	12	6	18
	Gout	5	...	5
	Rickets	1	3	4
	Cancer	240	168	408
	Tabes mesenterica, tubercular peritonitis	27	22	49
	Tubercular meningitis, acute hydrocephalus	28	35	63
	Phthisis	315	261	576
	Other forms of tuberculosis, scrofula	27	37	64
	Purpura, hæmorrhagic diathesis	4	2	6
	Anæmia, chlorosis, leucocythæmia	10	20	30
	Diabetes mellitus	25	24	49
	Other constitutional diseases	...	8	8
	Total Class IV.	708	611	1,319
V.—DEVELOPMENTAL DISEASES.	Premature birth	122	92	214
	Atelectasis	12	6	18
	Cyanosis	17	15	32
	Spina bifida	2	7	9
	Imperforate anus	3	...	3
	Cleft palate, hare-lip	...	...	...
	Other congenital defects	7	5	12
	Old age	135	123	258
	Total Class V.	298	248	546
VI.—LOCAL DISEASES	ORDER 1.—*Diseases of Nervous System.*			
	Inflammation of the brain or its membranes	39	39	78
	Cerebro-spinal meningitis	2	1	3
	Apoplexy	105	70	175
	Softening of brain	18	12	30
	Hemiplegia, brain paralysis	12	13	25

Causes of Death—*continued.*

Class.	Causes of Death. Orders and Diseases.	Males.	Females.	Total.
VI.—Local Diseases—*continued.*	Order 1.—*Diseases of Nervous System*—contd.			
	Paralysis (undescribed)...	28	27	55
	Paralysis agitans ...	...	...	...
	Insanity, general paralysis of insane	33	15	48
	Chorea	1	1	2
	Epilepsy	14	9	23
	Convulsions	73	62	135
	Laryngismus stridulus ...	2	...	2
	Idiopathic tetanus ...	5	2	7
	Paraplegia, diseases of spinal cord	21	14	35
	Locomotor ataxia ...	8	2	10
	Other diseases of nervous system	21	10	31
	Total Order 1 ...	382	277	659
	Order 2.—*Diseases of Organs of Special Sense.*			
	Otitis, otorrhœa... ...	7	6	13
	Epistaxis, and diseases of nose	...	2	2
	Ophthalmia, and diseases of eye	...	1	1
	Total Order 2 ...	7	9	16
	Order 3.—*Diseases of Circulatory System.*			
	Endocarditis, valvular disease	211	107	318
	Pericarditis	2	3	5
	Hypertrophy of heart ...	2	1	3
	Fatty degeneration of heart	23	18	41
	Angina pectoris	8	2	10
	Syncope	74	31	105
	Aneurism	18	6	24
	Senile gangrene... ...	12	2	14
	Embolism, thrombosis ...	10	6	16
	Phlebitis	...	...	...
	Varicose veins, piles ...	...	...	...
	Other diseases of circulatory system	19	6	25
	Total Order 3 ...	379	182	561
	Order 4.—*Diseases of Respiratory System.*			
	Laryngitis	10	10	20
	Croup	31	24	55
	Other diseases of larynx and trachea	...	...	...
	Asthma, emphysema ...	15	18	33
	Bronchitis	191	136	327
	Pneumonia	194	128	322
	Pleurisy	28	13	41
	Other diseases of respiratory system	36	24	60
	Total Order 4 ...	505	353	858
VI.—Local Diseases—*continued.*	Order 5.—*Diseases of Digestive System.*			
	Stomatitis, cancrum oris	2	4	6
	Dentition	24	27	51
	Sore throat, quinsy ...	11	8	19
	Dyspepsia	2	5	7
	Hæmatemesis	4	...	4
	Melæna	4	2	6
	Diseases of stomach, gastritis	44	35	79
	Enteritis	78	56	134
	Ulceration, perforation, of intestine	5	4	9
	Ileus, obstruction of intestine	24	18	42
	Stricture or strangulation of intestine	2	...	2
	Intussusception of intestine	6	...	6
	Hernia	8	11	19
	Fistula	...	...	...
	Peritonitis	29	31	60
	Ascites	2	2	4
	Gall-stones	4	6	10
	Cirrhosis of liver ...	22	12	34
	Other diseases of liver, hepatitis, jaundice ..	39	48	87
	Other diseases of digestive system	13	11	24
	Total Order 5 ...	323	280	603
	Order 6.—*Diseases of Lymphatic System and Ductless Glands.*			
	Diseases of lymphatic system	5	2	7
	Diseases of spleen ...	...	...	...
	Bronchocele	3	2	5
	Addison's disease ...	1	3	4
	Total Order 6 ...	9	7	16
	Order 7.—*Diseases of Urinary System.*			
	Acute nephritis	13	7	20
	Bright's disease ...	57	36	93
	Uræmia	8	6	14
	Suppression of urine ...	6	2	8
	Calculus	7	2	9
	Hæmaturia	...	1	1
	Diseases of bladder and prostate	37	4	41
	Other diseases of urinary system (kidney diseases undescribed)	14	10	24
	Total Order 7 ...	142	68	210
	Order 8.—*Diseases of Reproductive System.*			
	(*a.*) Diseases of organs of generation,—			
	Ovarian disease ...	...	11	11

CAUSES OF DEATH—*continued*.

Class.	Causes of Death. Orders and Diseases.	Males.	Females.	Total.
VI.—LOCAL DISEASES—*continued*.	ORDER 8.—*Diseases of Reproductive System*—ctd.			
	(*a*.) Diseases of organs of generation—*ctd*.			
	Diseases of uterus and vagina	...	16	16
	Disorders of menstruation	...	2	2
	Pelvic abscess	...	5	5
	Perineal abscess ...	...	...	...
	Diseases of testes, penis, scrotum, &c.	...	...	...
	(*b*.) Diseases of parturition,—			
	Abortion, miscarriage ...	...	15	15
	Puerperal mania ...	...	1	1
	Puerperal metritis ...	...	1	1
	Puerperal convulsions ...	...	7	7
	Placenta prævia (flooding)	...	13	13
	Phlegmasia dolens ...	...	1	1
	Other accidents of childbirth	...	35	35
	Total Order 8 ...	...	107	107
	ORDER 9.—*Diseases of Organs of Locomotion*.			
	Caries, necrosis	10	3	13
	Arthritis, ostitis ...	2	...	2
	Other diseases of organs of locomotion	4	4	8
	Total Order 9 ...	16	7	23
	ORDER 10.—*Diseases of Integumentary System*.			
	Carbuncle	4	...	4
	Phlegmon, cellulitis ...	2	3	5
	Lupus	...	1	1
	Ulcer, bed-sore	1	1	2
	Eczema	3	1	4
	Pemphigus	...	...	...
	Other diseases of integumentary system ...	1	1	2
	Total Order 10 ...	11	7	18
	Total Class VI. ...	1,774	1,297	3,071

Class.	Causes of Death. Orders and Diseases.	Males.	Females.	Total.
VII.—VIOLENCE.	ORDER 1.—*Accident or Negligence*.			
	Fractures, contusions ...	160	22	182
	Gunshot wounds ...	12	2	14
	Cut, stab	10	...	10
	Burn, scald	22	17	39
	Sunstroke	4	1	5
	Poison	9	2	11
	Drowning	220	73	293
	Suffocation	18	6	24
	Otherwise	24	15	39
	Total Order 1 ...	479	138	617
	ORDER 2.—*Homicide*.			
	Murder, manslaughter ...	6	1	7
	Wounds in battle ...	...	...	...
	Total Order 2 ...	6	1	7
	ORDER 3.—*Suicide*.			
	Gunshot wounds ...	21	...	21
	Cut, stab	10	2	12
	Poison	8	6	14
	Drowning	5	3	8
	Hanging	15	3	18
	Otherwise	...	...	...
	Total Order 3 ...	59	14	73
	ORDER 4.—*Execution*.			
	Hanging	...	...	...
	Total Class VII. ...	544	153	697
VIII.—ILL-DEFINED AND NOT-SPECIFIED CAUSES.	Dropsy	1	...	1
	Marasmus, &c.	139	113	252
	Mortification, gangrene ...	...	...	...
	Tumour	...	...	...
	Abscess	...	...	...
	Hæmorrhage	1	...	1
	Sudden (cause unascertained) ...	...	...	...
	Other ill-defined and not-specified causes ...	5	2	7
	Total Class VIII. ...	146	115	261
	General totals ...	4,011	2,907	6,918

The deaths in 1894 from specific febrile or zymotic diseases amounted to 959, a proportion of 141 in every 100,000 persons living, and a decrease of 228 on the number of deaths in 1893 from the same causes.

The following are the diseases in this class that have caused the greatest mortality during the past ten years:—

Diseases.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.
Measles	1	49	28	5	2	1	1	..	525*	14
Scarlet fever and scarlatina	12	7	18	21	19	31	24	4	1	5
Diphtheria ..	104	78	92	143	113	116	86	195	128	92
Whooping-cough ..	91	132	138	72	19	82	242	115	55	190
Influenza ..	5	11	9	9	9	70	210	144	106	233
Diarrhœal diseases	399	455	475	214	355	290	319	329	198	207
Enteric or typhoid fever	118	123	158	130	118	145	119	134	97	115
Puerperal fever ..	48	33	24	39	25	19	27	29	24	38

From smallpox there were no deaths. The total vaccinations registered rose from 7,412 to 9,322, and the proportion of successful vaccinations of children under fourteen years of age to the total of births, from 40·75 to 50·31. The number of children under one year of age successfully vaccinated, and the proportion to the total number of births, are given for 1894 and the seven preceding years:—

Provincial Districts.	Total Vaccinations registered.	Number of Births registered.	Proportion of Successful Vaccinations of Children under 1 Year of Age to Total Births. Per Cent.	Proportion of Successful Vaccinations of Children under 14 Years of Age to Total Births. Per Cent.
Auckland	1,542	4,042	25·48	38·15
Taranaki	497	854	28·92	58·20
Hawke's Bay ..	617	1,074	29·33	57·45
Wellington ..	1,147	3,354	24·15	34·20
Marlborough ..	43	368	3·53	11·68
Nelson	500	881	12·71	56·75
Westland	6	250	..	2·40
Canterbury ..	2,534	3,516	56·97	72·07
Otago	2,436	4,180	35·31	58·28
Chatham Islands ..	..	9	..	..
Totals, 1894 ..	9,322	18,528	32·42	50·31
Totals, 1893 ..	7,412	18,187	28·09	40·75
" 1892 ..	8,216	17,876	32·41	45·96
" 1891 ..	9,284	18,273	38·81	50·81
" 1890 ..	9,357	18,278	42·66	51·19
" 1889 ..	11,913	18,457	48·37	64·55
" 1888 ..	12,782	18,902	51·10	67·62
" 1887 ..	12,919	19,135	53·79	67·52

The figures for last year show some improvement when compared with those for the two previous years—1892–93—but in themselves they are most unsatisfactory, for they go to prove that only one child in every three born is successfully vaccinated, which is a serious matter enough when the possibility of an epidemic of smallpox is taken into consideration.

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* Including rubeola (14).

In England, after three years practical immunity from smallpox, the deaths rose in 1892 to 431, or 15 per million persons living. In 1893 there was a further rise to 1,457, or a rate of 49 per million living. The Registrar-General remarks that "of the 1,457 persons who died from this disease only 150, or 10·3 per cent., were described as having been vaccinated, 253, or 17·4 per cent., were returned as not vaccinated, and with respect to 1,054, or 72·3 per cent., no statement as to vaccination appeared in the certificates. In addition to the above, 127 deaths were attributed to chicken-pox, and 59 deaths to 'effects of vaccination.' Thus, the total number of deaths either certainly or possibly caused by variola, and of deaths alleged to have been caused by the means taken to prevent that disease, during the year 1893 was 1,643, or 55 per million persons living." A system, described as "moderate compulsion," has been recommended in England, under which persons who had been fined £1, or had been fined in two penalties of any amount, for neglecting to have their children vaccinated would be exempted from any further proceedings.

Measles, which was epidemic in 1893, caused only 14 deaths in 1894, and there was also last year a fall in the deaths by diphtheria from 128 to 92. On the other hand, there was an increase in deaths from whooping-cough from 55 to 190. The mortality from influenza (233 deaths) was the highest recorded, being more than double that of 1893. In the last five years the deaths from this cause have numbered 753. Deaths from diarrhœal diseases in 1894 (207), although slightly more numerous than in the previous year, were not so fatal as in 1892, and much fewer than in 1886 (455), and 1887 (475). The death-rate for 1894 from this class of disease was 3·05 per 10,000 persons. This is much less than the rate in England, which was 9·99 for 1893, and, for the decennium 1883–92, 6·53. Deaths from typhoid or enteric fever increased from 97 in 1893 to 115 in 1894; but in 1890 with a smaller population the number was as high as 145. The death-rate from typhoid fever per 10,000 persons living in 1894 was 1·69 in New Zealand. In England it was 2·29 for the previous year (1893), and 1·84 for the decennium 1883–92.

The following table showing the proportions for the several Australasian Colonies for the years 1887–92 is taken from the Victorian Year-book:—

DEATHS FROM TYPHOID FEVER, 1887–92, PER 10,000 PERSONS LIVING.

	1887.	1888.	1889.	1890.	1891.	1892.
Queensland ..	7·07	6·31	10·28	3·40	3·11	3·05
New South Wales ..	4·32	4·26	5·35	2·82	2·35	2·81
Victoria ..	6·21	5·13	8·35	5·46	3·10	2.59
South Australia ..	4·92	3·84	4·37	3·13	2·52	2·70
Western Australia ..	3·12	1·65	1·16	0·42	2·34	9·83
Tasmania ..	8·37	6·12	8·06	3·41	5·57	3·01
New Zealand ..	2·82	2·30	1·98	2·40	1·89	2·20

There were 22 deaths from parasitic diseases, the proportion per 10,000 living being 0·32. Six men and three women died from hydatids.

The deaths from constitutional diseases in 1894 numbered 1,319, or 19·42 per 10,000 of population. The most fatal diseases in this class were phthisis and cancer.

From phthisis there are more deaths than from any other cause. The number of deaths was 576 in 1894—315 males and 261 females—against 545—295 males and 250 females—in 1893. The deaths in 1894 were in the proportion of 8·48 in every 10,000 persons living. The rate among males was higher—8·73 per 10,000 persons living—than among females, 8·19 per 10,000.

The death-rate from phthisis in New Zealand is the lowest for the Australasian Colonies, as will be seen from the figures quoted below:—

DEATH-RATES FROM PHTHISIS PER 10,000 PERSONS LIVING.

	1890.	1891.	1892.
Queensland	13·35	12·38	10·17
New South Wales ..	9·34	9·21	8·62
Victoria	14·58	12·93	13·60
South Australia ..	9·29	10·36	9·41
Western Australia ..	8·97	9·56	8·40
Tasmania	9·60	9·00	8·44
New Zealand ..	8·38	7·86	8·16

In all the Australasian Colonies the rate is materially increased by the deaths of persons who have come out either already suffering from phthisis or predisposed thereto. There is no reason for believing that this circumstance has more effect on the death-rate in Australia than in New Zealand; so that the lower rate obtaining in this colony may be taken as proof of the superiority of its climate for withstanding consumptive tendencies.

The death-rate of England and Wales from phthisis is far higher than that of New Zealand. In 1893 it stood at 14·68 per 10,000. The Registrar-General of England remarks in his report that "up to the year 1888 the mortality from phthisis had shown a steady decline for many years, but in 1889, 1890, and 1891 it rose somewhat. In 1892 and 1893, however, the rate fell again to 1,468 in a million, which is the lowest rate on record."

Phthisis is now known to be and is treated as an infectious preventible disease caused by the bacillus tuberculosis, which is communicable in many ways. Certain constitutions are far more predisposed than others to receive this bacillus, especially under conditions of life unfavourable to robust health, when a nidus is formed for the development of the bacillus.

Legislative action has been recommended to safeguard the life and health of the people from tubercle, and the complete isolation of consumptive patients, with the disinfecting of their sputa, and of everything that has been in contact with them, is suggested from time to time as a necessary measure.

A table is given, as in previous years, to show the ages, with the length of residence in the colony, of persons who died from phthisis in 1894:—

DEATHS FROM PHTHISIS.

Length of Residence in the Colony.	Age at Death.										
	Under 5 Years.	5 to 10.	10 to 15.	15 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and upwards.	Total.
MALES.											
Under 1 month ..	..	..	..	2	1	1	..	..	..	..	4
1 to 6 months	..	..	..	1	2	..	1	..	..	..	4
6 to 12 months ..	..	..	..	2	1	1	..	..	..	..	4
1 to 2 years	..	..	..	2	2	1	..	..	..	..	5
2 to 3 years	..	..	..	1	3	1	..	..	..	..	5
3 to 4 years	..	1	..	1	..	..	..	..	..	..	2
4 to 5 years	..	..	..	..	2	..	1	..	..	..	3
5 to 10 years	..	..	..	1	2	7	2	1	..	..	13
10 to 15 years	..	..	..	4	5	14	3	1	..	..	27
15 to 20 years	..	..	..	5	4	14	2	1	2	..	28
20 to 25 years	..	..	..	1	10	8	5	3	2	1	30
25 years and upwards ..	..	..	..	..	6	9	17	26	4	2	64
Not known	..	..	..	2	5	9	4	5	1	1	27
Born in colony ..	3	1	4	47	29	11	4	..	..	..	99
Totals	3	2	4	69	72	76	39	37	9	4	315
FEMALES.											
Under 1 month ..	..	..	..	..	1	..	..	..	..	..	1
1 to 6 months	..	..	..	1	2	1	..	..	..	..	4
6 to 12 months ..	..	..	..	2	..	1	..	..	..	..	3
1 to 2 years	..	..	1	..	2	..	..	..	..	..	3
2 to 3 years	..	..	..	..	..	..	..	..	..	..	..
3 to 4 years	..	..	..	..	..	..	..	..	..	..	..
4 to 5 years	..	..	..	1	2	..	..	..	..	..	3
5 to 10 years	..	..	..	1	7	3	..	..	..	..	11
10 to 15 years	..	..	..	3	6	7	1	..	..	..	17
15 to 20 years	..	..	..	4	2	7	4	1	..	1	19
20 to 25 years	..	..	..	4	6	7	8	3	..	..	28
25 years and upwards ..	..	..	..	..	9	7	6	5	..	..	27
Not known	..	..	..	5	..	1	1	..	..	..	7
Born in colony ..	4	1	10	71	47	4	1	..	..	..	138
Totals	4	1	11	92	84	38	21	9	..	1	261
Totals of both sexes	7	3	15	161	156	114	60	46	9	5	576

From other forms of tuberculosis the deaths in 1894 were 176, or 2·59 per 10,000 of population.

Cancer was returned as the cause of 408 deaths in 1894, showing the large increase of 76 on the number for the previous year. In 1893 the deaths stated were 332; in 1892, 307; in 1891, 295; in 1890, the same number; and in 1889, 260. The death-rates for

England and New Zealand, given below, would lead to the belief that there has been of late years a most serious increase in mortality from this cause.

DEATHS FROM CANCER IN EVERY 10,000 PERSONS LIVING.

Year.	New Zealand.	England.
1881	2·69	5·20
1882	2·89	5·34
1883	2·99	5·49
1884	3·46	5·63
1885	3·13	5·72
1886	3·68	5·90
1887	3·99	6·15
1888	4·34	6·21
1889	4·25	6·56
1890	4·75	6·76
1891	4·68	6·92
1892	4·78	6·90
1893	5·02	7·11
1894	6·01	..

It has been held, however, that the apparent increase in cancer is the result of more careful definition of the causes of death, and of improved diagnosis. To this the Registrar-General of England replies: "In the face of the constant and great growth of mortality under the head of cancer, and the expressed belief of medical practitioners especially engaged in dealing with this class of diseases that they are becoming more and more common, it seems scarcely possible to maintain the optimistic view that the whole of the apparent increase can be thus explained; and it must be admitted as at any rate highly probable that a real increase is taking place in the frequency of these malignant affections." But a careful investigation made by Mr. George King (Honorary Secretary, Institute of Actuaries), and Dr. Nensholme leads to conclusions differing from the above, and it is now, on the contrary, argued that there has been no increase of cancer whatever, as will be seen by the following extract from the "Proceedings of the Royal Society, London":—

> The statistics for Frankfort-on-the-Main enable us to classify cancer in accordance with the part of the body primarily affected. We have therefore classified the returns into two groups, according as the cancer is "accessible" or easy of diagnosis, and "inaccessible" or difficult of diagnosis. The results of this classification show that in those parts of the body in which cancer is easily accessible and detected there has been no increase in cancer mortality between 1860 and 1889. It is true that the majority of the deaths from "accessible" cancer are among women—the deaths from "accessible" cancer among men at Frankfort-on-the-Main being too few to be, when considered alone, trustworthy; but we know of no reason for supposing that, while female cancer of "accessible" parts has remained stationary, male and female cancer of the other parts of the body has really increased.

The general conclusions arrived at are these :—

> 1. Males and females suffer equally from cancer in those parts of the body common to man and woman, the greater prevalence of cancer among females being due entirely to cancer of the sexual organs.

2. The apparent increase in cancer is confined to what we have called inaccessible cancer. This is shown (*a*) by the Frankfort figures, (*b*) by the fact that the difference between the rates for males and females respectively is approximately constant, and does not progressively increase with the apparent increase in cancer in each of the sexes, and (*c*) because the apparent increase in cancer among the well-to-do assured lives, who are presumably attended by medical men of more than average skill, is not so great as among the general population.

3. The supposed increase in cancer is only apparent, and is due to improvement in diagnosis and more careful certification of the causes of death. This is shown by the fact that the whole of the increase has taken place in inaccessible cancer difficult of diagnosis, while accessible cancer easily diagnosed has remained practically stationary.

As to the nature of cancer, Dr. R. G. Macdonald, of Dunedin, in his notes on Cancer Statistics, writes,—

> The German schools assert that cancer can be inoculated, and is contagious, while some of our English schools as positively assert that it is not, but is due to the exigencies of cell life. . . . The contest now lies between the bacillus and the cell, and it remains to be seen who shall win the day.
>
> The one is a foreigner, *ab extra*, of desperately evil repute; the other a native product, *per excessum*, which has thrown off allegiance to the parent stock, and has set out on a madcap career of its own. It is difficult for the individual attacked to say whether the cell or the bacillus would be preferable, and, indeed, it matters not, as it would be a choice between Scylla and Charybdis. To the great majority of humanity, however, it is of the utmost importance that the battle should be decided, as, should the bacillus theory prevail, much can be done to destroy its potency. Our food-supplies, and those already affected, would be much more carefully attended to, and general hygiene would acquire a fresh stimulus. It would, doubtless, be dealt with much the same as tubercle, and with the prospect of gradually eradicating it. Should the cell theory be triumphant, we must clamour for the millennium or "Looking Backward" at once; as, while the world goes as it does, it is impossible to get rid of worry or other neurotic causes; and it is equally impossible to get rid of the majority of cases arising from local injury or irritation.

He gives also, as conclusive proof that the evil is not attributable to flesh-eating, Surgeon Major Hendley's account of cancer at the Jeypore Hospital:—

> The records of the Jeypore Hospital, which is under my charge, show no such immunity of vegetarians from cancer. From January, 1880, to the present date, 102 major operations have been performed in the hospital in cases of cancer. Of these, forty-one were on the persons of meat-eaters, and sixty-one on those of strict vegetarians, who had never eaten meat since their birth. Amongst them are six Saraogis, a class of Jains who even reject many kinds of vegetables.

The following table gives the death-rates from cancer in New Zealand of males and females for the past eleven years:—

DEATHS FROM CANCER IN EVERY 10,000 PERSONS OF EACH SEX LIVING IN NEW ZEALAND.

Year.	Males.	Females
1884	3·26	3·69
1885	2·82	3·43
1886	3·69	3·67
1887	3·96	4·03
1888	4·19	4·53
1889	3·47	4·06
1890	4·72	4·79
1891	4·61	4·77
1892	5·08	4·44
1893	5·35	4·65
1894	6·65	5·27

Deaths from diabetes mellitus were more numerous in 1894 than in any previous year. In 1887, when the European population of the colony was 596,374 persons, the deaths were only 17, but in 1894 the total was 49, with a population of 679,196. The death rates were, for 1887, 29 out of every million persons living, and 72 per million for 1894.

The total of deaths from developmental diseases was 546, or 8·04 per 10,000 persons living. The mortality from premature birth comprised 214 deaths. Below is given the proportion for the last five years of deaths from this cause to the total births in the colony. Deaths from congenital defects were 74, and the proportion of these to the total births is also given below. It will be noticed that both proportions show an increase during the period.

NUMBER AND PROPORTIONS PER 1,000 BIRTHS.

Year.	Deaths by Premature Birth.		Deaths by Congenital Defects.	
	No.	Proportion per 1,000.	No.	Proportion per 1,000.
1890	205	11·22	53	2·90
1891	188	10·29	51	2·79
1892	201	11·24	57	3·19
1893	228	12·54	69	3·79
1894	214	11 55	74	3·99

Or, stating the result in another way, there was one death from premature birth to every 89 births in 1890, and one to 87 in 1894. Similarly the deaths by congenital defects show one to every 345 births in 1890, and one in 250 in 1894. In England the proportion of deaths by premature birth to every 1,000 births was as high as 18·88 in the year 1893.

Deaths from old age in 1894 numbered 258, against 209 in 1893.

Deaths by diseases of the nervous system (659) were 9·53 per cent. of the total mortality last year, and 9·70 per 10,000 of persons living. Of the 659 deaths, 175 were credited to apoplexy, 135 to convulsions, and 78 to inflammation of the brain and its membranes. A comparison of the deaths from nervous diseases (excluding convulsions of children) for the last five years does not give any reason for supposing that these complaints are on the increase.

Year.	Deaths from Nervous Diseases (excluding Convulsions of Children.) No.	Proportion per 10,000 Persons living.
1890	527	8·42
1891	526	8·35
1892	556	8·66
1893	601	9 09
1894	524	7·72

Deaths from Bright's disease of the kidneys (albuminuria) numbered 93 in the year 1894. In the year 1891, with a smaller population, the mortality was greater (102 deaths); but for the years 1885–86–87 the deaths were only 53, 57, and 46 respectively. The proportions per million of population were: 1885, 92; 1886, 98; 1887, 77; 1891, 162; 1894, 137.

Deaths by violence form a very large item in the total mortality. In 1894 the proportion per 10,000 of males living was 15·08, and the proportion in the same number of females 4·80. In other words, one out of every 663 males living, and one out of every 2,082 females, met with a violent death. About 125 persons—76 males and 49 females—lost their lives at the wreck of the s.s. "Wairarapa," on Great Barrier Island.

Of 544 males who died violent deaths, 59, or 10·85 per cent., were suicides. The deaths of females by violence were far fewer, amounting to no more than 153, and out of these only 14 committed suicide, a proportion of 9·15 per cent. The table on page 107 gives the full list of deaths from external or violent causes for the year 1894.

Accidental deaths numbered 617—males 479 and females 138. Of the total male deaths, 160 resulted from fractures or contusions, and 220 from accidental drowning. Of the female deaths, 73 were due to drowning.

The accidental deaths in 1893 were 380 males and 91 females; and suicides, 55 males and 15 females.

The following figures, taken from the Victorian Year-book of 1894, show the death-rate from violence in the Australasian Colonies and the United Kingdom, from which it would appear that the rate in New Zealand is higher than in the Home-country, South Australia, Victoria, and Tasmania, but lower than in New South Wales, Queensland, and Western Australia:—

Colonies or Countries.	Proportion per 100,000 living of Deaths by Violence.
Queensland	163·8
Western Australia	161·7
New South Wales	111·7
New Zealand	95·7
Victoria	94·6
United Kingdom	77·5
Tasmania	74·5
South Australia	74·2

DEAF-AND-DUMB.

The number of deaf-and-dumb of both sexes returned at the census of 1891 was 166, the males being 93 and females 73. Included amongst these are 26 persons described as "dumb" only. Out of a total number of 166, 134 were under 30 years of age.

It would appear that the proportion of the deaf-and-dumb in the colony is increasing with time, but not to any very great degree. The figures are given for five census periods:—

DEAF-AND-DUMB.—PROPORTIONS PER 10,000 OF POPULATION.

	Persons.	Males.	Females.
Census 1874	1·90	2·05	1·71
„ 1878	2·22	2·25	2·18
„ 1881	2·33	2·23	2·45
„ 1886	2·30	2·37	2·22
„ 1891	2·65	2·80	2·49

The number of deaf-and-dumb under 15 years of age was 75. Of these, 50 were at the end of 1891 inmates of the Deaf-and-dumb Institution at Sumner. (See Report of the Hon. the Minister for Education, 1892.)

The number of the population of the colony under 15 years of age was 250,368 at the date of the census, so that, with a total number of 75 deaf-mutes at that period of life, there was 1 deaf-mute in every 3,338 children. The proportion of deaf-mutes of all ages to the total population of the colony was 1 in every 3,775 persons.

The proportion of deaf-mutes to the total population at the census of 1891 for each of the Australasian Colonies was—

South Australia	.. 1 deaf-mute to every	1,369 persons.
Queensland	„ „	2,557 „
Tasmania	„ „	2.716 „
New South Wales	„ „	2,867 „
Victoria	„ „	3,133 „
New Zealand	„ „	3,775 „
Western Australia	„ „	4,526 „

BLIND.

In the 1891 census 274 persons were returned as "blind" or "nearly blind." Of these, 164 were males and 110 females. The results of five censuses are compared in the following table, which shows a steady rise in the numbers of the blind considered in proportion to population, and also that in New Zealand blindness is somewhat more prevalent among males than amongst females:—

PROPORTIONS OF BLIND TO EVERY 10,000 OF THE POPULATION.

	Persons.	Males.	Females.
Census 1874	2·34	2·45	2·18
„ 1878	2·56	2·42	2·73
„ 1881	2·82	2·93	2·68
„ 1886	3·22	3·65	2·70
„ 1891	4·37	4·91	3·74

The proportion of the blind per 10,000 persons living is—for England, about 8·79; for Ireland, 11·30; for Scotland, 6·95; for Germany, 7·93; for France, 8·37; and for Italy, 7·63. For the Australian Colonies the figures are: Victoria, 8·72; New South Wales, 6·59; Australian Continent, 7·38.

The greater prevalence of blindness in Australia than in New Zealand is best seen by the following comparison for 1891:—

Tasmania	.. 1 blind person to every	889 persons.
Western Australia	„ „	922 „
Victoria	„ „	1,146 „
South Australia	„ „	1,297 „
New South Wales	„ „	1,517 „
Queensland	„ „	1,978 „
New Zealand	„ „	2,287 „

Of 274 blind persons, only 66 were found to be under 40 years of age, blindness being a disease more common to the later periods of life.

Blind persons are returned in the census under many heads of occupation, as might be expected, considering the fact just mentioned, that blindness is more common in later life than in youth. No doubt the occupations stated must be looked upon in many instances as past occupations—to which the persons referred to were brought up, and which they followed before they became blind.

The occupations for 1891 are as follow:—

OCCUPATIONS (PAST AND PRESENT) OF THE BLIND.

		M.		F.	
	Persons.	Under 20.	Over 20.	Under 20.	Over 20.
Justice of the Peace	1	..	1	..	..
Monthly nurse ..	1	..	..	..	1
School-teacher ..	2	..	1	..	1
Instructor to the blind ..	1	..	1	..	..
Photographer ..	1	..	1	..	..
Music-teacher ..	2	..	2	..	..
Boarding-house keeper ..	1	..	1	..	..
Housekeeper ..	1	..	..	..	1
Capitalist ..	3	..	2	..	1
Proprietor of land	1	..	1	..	..
News vendor ..	1	..	1	..	..
Bootlaces and match vendor	1	..	1	..	..
Draper ..	1	..	1	..	..
Butcher ..	1	..	1	..	..
Greengrocer ..	1	..	1	..	..
Grocer ..	1	..	1	..	..
Labourer in coal-yard ..	1	..	1	..	..
Storekeeper ..	2	..	2	..	..
General dealer ..	2	..	2	..	..
Hawker ..	1	..	1	..	..
Commission agent	1	..	1	..	..
Clerk ..	1	..	1	..	..
Assisting carrier	1	1	..	..	..
Piano-tuner ..	1	..	1	..	..
Basket-maker ..	3	..	3	..	..
Coach-painter ..	1	..	1	..	..
Boatbuilder ..	1	..	1	..	..
Chair-mender ..	1	..	1	..	..
Boot- and shoe-maker ..	1	..	1	..	..
Baker ..	1	..	1	..	..
Brewer ..	1	..	1	..	..
Cordial-maker ..	1	..	1	..	..
Sawyer ..	1	..	1	..	..
Brickmaker ..	1	..	1	..	..
Tinsmith ..	1	1	..	..	..
Blacksmith ..	1	..	1	..	..
Moulder ..	1	..	1	..	..
Carpenter ..	4	..	4	..	..
Labourer on roads	1	..	1	..	..
Engineer ..	1	..	1	..	..
Labourer (undefined) ..	13	..	13	..	..
Farmer ..	11	..	11	..	..
Relative assisting farmer ..	1	..	1	..	..
Farm labourer ..	2	..	2	..	..
Gardener ..	1	..	1	..	..
Dairy-farmer ..	1	..	1	..	..
Gold-miner ..	2	..	2	..	..
Quarryman ..	1	..	1	..	..
Gum-digger ..	1	..	1	..	..
Pensioner ..	3	..	3	..	..
Annuitant ..	2	..	1	..	1
Independent means and retired ..	11	..	4	..	7
Not stated, and no occupation ..	87	6	35	7	39
Domestic duties	41	..	..	2	39
Governmt. scholar	1	1	..	..	..
Receiving tuition at home ..	3	2	..	1	..
Dependent relatives ..	8	3	..	5	..
Inmate of hospital	3	..	2	..	1
Inmate of benevolent asylum ..	29	..	25	..	4
Inmate of industrial school ..	1	1	..	..	..
Receiving charitable aid ..	1	..	1	..	..
Totals ..	274	15	149	15	95

LUNACY.

The lunatics returned in the census numbered 1,798 of both sexes, 1,088 being men and 710 women.

As in the case of the blind, the census results exhibit continuous increase in the proportion to population, and also show that lunacy is more prevalent amongst men than amongst women.

LUNATICS.—PROPORTIONS PER 10,000 OF POPULATION.

	Persons.	Males.	Females.
Census 1874	19·93	23·28	15·48
„ 1878	20·85	25·07	15·54
„ 1881	22·86	27·30	17·43
„ 1886	26·50	31·03	21·18
„ 1891	27·82	31·28	23·92

The number of lunatics stated in the asylum returns as for the 1st January, 1891, was 1,797, or just one fewer than the number brought out by the census. Although the asylum returns include certain idiots and inebriates not included in the census figures as lunatics, the figures are sufficiently close to show that, saving perhaps one or two here and there, the lunatics of the colony are all cared for in the various institutions set apart for their reception, of which there are seven under Government, and one private asylum licensed by the Governor.

On examining the numbers at the several age-periods, it is found that, taking both sexes, the proportion of lunatics in every 10,000 persons was only 2·61 at 15–20 years, but from that period onwards rose rapidly to 96·67 at 45–50 years, after which it diminished somewhat. The proportion of lunatic females of all ages to the total female population was considerably less than the proportion of males; nevertheless at the period 45–50 years 98·89 per 10,000 women were lunatics, while the highest proportion shown for men is 96·85, at the period 55–60 years.

The number of idiots at the date of the last census was 128. These are not included as lunatics in the census numbers. The proportion of idiots to population was 2·03 per 10,000 of both sexes; for males 2·32, and for females 1·7. At the census of 1886 only 89 persons were returned as idiots.

Insanity, including idiocy, exists in Ireland at the rate of 45·04 insane persons per 10,000 persons living. The rate in Scotland is 38·43; in Victoria, 36·17; in England, 32·53; in New South Wales, 30·38; in New Zealand, 29·85; in France, 25·1; in Sweden, Norway, and Denmark, 20·59.

HOSPITALS, LUNATIC ASYLUMS, BENEVOLENT ASYLUMS, AND CHARITABLE INSTITUTIONS.

Hospitals.

Prior to the abolition of provinces the hospitals of the colony were supported mainly out of provincial revenues. After that event, the expenditure for hospitals was for the most part charged against the revenue of counties and municipal corporations, until October, 1885, when "The Hospitals and Charitable Institutions Act, 1885," came into force.

The portion of the colony included within the three principal islands—the North, Middle, and Stewart Islands—was by the above Act divided into twenty-eight hospital districts, each consisting of one or more counties with the interior boroughs, to be presided over by elective Boards, designated "Hospital and Charitable-aid Boards."

The revenues of these Boards accrue from the following sources:—

(1.) Rents and profits of land and endowments vested in the Board, or set apart for the benefit of particular institutions;
(2.) Voluntary contributions;
(3.) Grants from contributory local authorities; and
(4.) Subsidies from the Consolidated Fund (these being at the rate of 10s. for every £1 of bequests, but in no case exceeding £500 in respect of any one bequest; £1 4s. for every £1 of voluntary contributions; and £1 for every £1 received from any local authority).

The contributory local authorities—being the County and Borough Councils, and Boards of road and town districts where the Counties Act is not in force—are empowered by the Act to raise by special rates the amounts assessed by the Hospital District Boards as their proportionate contributions to the Hospital and Charitable-aid Fund.

The District Boards undertake the general management and control of those hospitals that are not incorporated in terms of the Act, and are required to contribute to the support of the incorporated hospitals. To be incorporated a hospital must have as many as 100 subscribers, contributing not less than £100 annually by amounts of not less than 5s., and must have been declared by the Governor in Council, after receipt by him of a duly signed petition, to be a body politic and corporate, under the government of trustees.

There are 39 hospitals in the colony, of which 21 are incorporated institutions, while 18 are directly managed and controlled by District Boards. In 1894 these hospitals afforded accommodation for 1,019 male and 484 female patients, a total of 1,503. The number of cubic feet of space included within the walls of all the sleeping-wards was 2,058,588, which gave an average of 1,370 cubic feet to each bed. 6,386 males and 2,848 females were admitted as patients during the year 1894, and 595 male and 245 female patients were inmates at the end of the year. The total number of indoor patients during the year was 10,012—viz., 6,979 males and 3,033 females.

Outdoor relief was also given to a very large number of persons; but, as in some of the hospitals no records are kept of the outdoor patients, it is impossible to state the number of distinct persons who received such relief.

Benevolent Asylums and Charitable Institutions.

The various benevolent asylums and charitable institutions are placed on a similar footing to the hospitals. Most of the Boards of hospital districts are also Charitable-aid Boards; but, for the purpose of distributing charitable aid only, some of the hospital districts have been united into larger districts, so that, although there are 28 Boards for hospital purposes, there are only 21 for charitable-aid purposes.

Returns were received in 1894 from 16 benevolent asylums (not including orphanages), established for the support of indigent persons. The number of inmates in these institutions at the end of 1894 was 925, of whom 611 were males and 314 females. Outdoor relief was given by three of these institutions to 3,312 persons, including 2,122 children.

Auckland Sailors' Home.

There is a Sailors' Home at Auckland for the use of seafaring men resident in or visiting the town. The late Edmund Costley having left a large sum for charitable purposes, it was resolved to employ the bequest in building and endowing an institution where sailors might be received without distinction of race or religious belief, and board, lodging, and refreshments provided for them, together with such instruction and amusements as might tend to promote their social comfort and general welfare.

The Home, built in 1887, has room for 35 inmates, who are charged 15s. a week for board and lodging. It is managed by a council of eight members elected by the subscribers to the institution, with the Anglican Bishop of Auckland (the Right Rev. W. G. Cowie), who first originated the scheme, as life president.

Orphan Asylums.

There were in 1894 five orphan asylums in the colony, one maintained by a District Hospital Board, one by the Church of England authorities, and three by clergy of the Roman Catholic Church; three of them receiving, at the charge of the State, orphan, destitute, and other children committed to them by a Stipendiary Magistrate.

Exclusive of the children so committed, 12 male and 27 female orphans were received during the year 1894, and 45 male and 81 female orphans remained as inmates at the end of the year.

Orphanages receiving committed children are, for that purpose, constituted "industrial schools," and mention of these will be found in the article "State Instruction."

Lunatic Asylums.

There are seven public lunatic asylums in the colony, maintained wholly or in part out of the public revenue. There is also one private asylum, licensed by the Governor for the reception of lunatics. There were, at the end of 1894, 1,308 male and 860 female patients belonging to these asylums. Of these, 1,203 males and 780 females were regarded as incurable, 14 males and 23 females were out on trial, and 91 males and 57 females were supposed to be curable. 125 male and 91 female patients were discharged during the year.

The following shows the proportion of insane—or, rather, of inmates of lunatic asylums—to the population (exclusive in each case of Maoris) at the end of the years stated :—

1884,	1 insane person	to every	393	of population.
1885,	"	"	382	"
1886,	"	"	370	"
1887,	"	"	360	"
1888,	"	"	365	"
1889,	"	"	349	"
1890,	"	"	348	"
1891,	"	"	343	"
1892,	"	"	339	"
1893,	"	"	330	"
1894,	"	"	316	"

It must not be overlooked that the proportions are increased by the admission into the asylums of inebriates, idiots, and others, who should not properly be there.

The Inspector of Hospitals and Asylums, in his report for the year 1894, specifies the causes of insanity in 349 cases (males, 205; females, 144) admitted during the year. In 58 of these (29 of either sex) the cause is given as "congenital or hereditary," and in 47 (males, 32; females, 15) as "drink." The proportion of cases due to drink to the total number of specified cases was therefore 13·47 per cent.

TRADE AND INTERCHANGE.

Shipping.

The shipping entered inwards during 1894 comprised 609 vessels, of 631,100 tonnage; while entered outwards were 614 vessels of 631,250 tons. Comparison with the figures for the previous year shows in the entries a decrease of 8 vessels, but an increase of 15,496 tons, and in the clearances a decrease of 21 vessels and 11,216 tons. Of the vessels inwards, 141, of 271,994 tons, were British; 423, of 306,547 tons, colonial; and 45, of 52,559 tons, foreign. Those outwards numbered 140, of 270,464 tons, British; 432, of 310,050 tons, colonial; and 42, of 50,736 tons, foreign. There was a rise of 18 in the number and 34,297 in the tonnage of colonial vessels entered, but a fall in the British shipping entered of 25 vessels and 18,329 tons. Of the entries, 279, of 133,836 tons, were sailing-vessels, and 330, of 497,264 tons, steamers. Of the clearances, 285, of 136,463 tons, were sailing-vessels, and 329, of 494,787 tons, steamers. The shipping inwards and outwards for ten years is given in the table following :—

VESSELS ENTERED, 1885–94.

Year.	Total Number.			British.			Colonial.			Foreign.		
	Vessels.	Tons.	Crews.	Vessels.	Tons.	Crews.	Vessels.	Tons.	Crews.	Vessels.	Tons.	Crews.
1885 ..	786	519,700	20,252	140	179,944	6,130	586	299,881	12,613	60	39,875	1,509
1886 ..	725	502,572	19,525	116	149,167	4,418	534	294,859	12,660	75	58,546	2,447
1887 ..	653	489,754	19,806	109	144,482	4,202	472	275,085	11,828	72	70,187	3,056
1888 ..	683	526,435	20,783	130	182,020	5,352	497	276,624	12,401	56	67,791	3,030
1889 ..	781	602,634	22,649	158	206,825	5,348	547	319,131	14,162	76	76,678	3,139
1890 ..	744	662,769	23,475	190	280,105	6,786	477	298,497	13,598	77	84,167	3,091
1891 ..	737	618,515	21,889	169	265,164	6,817	507	291,800	12,951	61	61,551	2,121
1892 ..	686	675,223	22,038	203	335,577	8,274	411	265,769	11,303	72	73,877	2,461
1893 ..	617	615,604	20,935	166	290,323	7,289	405	272,250	11,745	46	53,031	1,901
1894 ..	609	631,100	21,834	141	271,994	6,456	423	306,547	13,279	45	52,559	2,099

VESSELS CLEARED, 1885–94.

Year.	Total Number.			British.			Colonial.			Foreign.		
	Vessels.	Tons.	Crews.	Vessels.	Tons.	Crews.	Vessels.	Tons.	Crews.	Vessels.	Tons.	Crews.
1885 ..	780	513,000	19,882	135	177,186	6,052	589	297,432	12,393	56	38,382	1,437
1886 ..	707	488,331	19,052	102	134,660	3,870	530	295,469	12,771	75	58,202	2,411
1887 ..	675	493,583	19,155	113	142,890	4,070	494	282,499	12,098	68	68,194	2,987
1888 ..	701	531,478	20,961	109	157,871	4,509	533	305,264	13,396	59	68,343	3,056
1889 ..	762	593,252	22,647	160	211,872	5,714	527	307,083	13,762	75	74,297	3,171
1890 ..	745	649,705	23,260	195	284,635	7,168	477	283,735	13,076	73	81,335	3,016
1891 ..	744	625,807	22,080	168	271,533	7,002	515	291,938	12,947	61	62,336	2,131
1892 ..	689	656,100	21,679	189	315,633	7,934	424	263,504	11,241	76	76,963	2,504
1893 ..	635	642,466	21,448	186	317,130	7,839	400	270,308	11,665	49	55,028	1,944
1894 ..	614	631,250	21,934	140	270,464	6,437	432	310,050	13,527	42	50,736	1,970

NOTE.—Coasting-vessels are not included in the above table.

The above figures apply to the foreign trade only; but in a new country such as New Zealand, as yet deficient in roads, but having an extensive seaboard and a number of good harbours, the coastal trade must be relatively very large, as is evidenced by the figures next given:—

SHIPPING ENTERED COASTWISE, 1894.

	Number.	Tons.
Sailing-vessels	4,203	237,795
Steamers	13,389	4,365,048

SHIPPING CLEARED COASTWISE, 1894.

	Number.	Tons.
Sailing-vessels	4,061	231,702
Steamers	13,323	4,336,477

The total number of vessels entered coastwise was thus 17,592, of 4,602,843 tons, being an increase of 115 vessels and 271,708 tons on the figures for 1893. The clearances coastwise were 17,384 vessels, of 4,568,179 tons, an increase of 16 vessels and 287,705 tons on the number for the previous year. The number and tonnage of the registered vessels belonging to the several ports on the 31st December, 1894 (distinguishing sailing-vessels and steamers), was as under:—

REGISTERED VESSELS, 31ST DECEMBER, 1894.

Ports.	Sailing-vessels.			Steam-vessels.		
	Vessels.	Gross Tonnage.	Net Tonnage.	Vessels.	Gross Tonnage.	Net Tonnage.
Auckland	162	10,609	10,397	63	8,366	5,354
Napier	9	1,081	1,055	12	959	575
Wellington	13	4,207	4,082	22	3,913	2,321
Nelson	18	509	509	12	995	625
Lyttelton	31	5,549	5,417	9	1,336	592
Dunedin	46	11,127	10,974	58	48,308	29,151
Invercargill	17	2,325	2,240	3	304	190
Totals	296	35,407	34,674	179	64,181	38,808

Imports and Exports.

The quantities and values of imports used in making up the figures given in this portion of the statistical report are obtained from Customs entries, verified, where necessary, as with goods subject to an *ad valorem* duty, by examination. For exports, the "free on board in New Zealand" value is given; but, as regards the main items, the Collector of Customs examines carefully the amounts stated, and compares them with current price-lists, to prevent any over-estimate. Goods transhipped at a foreign port are regarded as imported from the country where they were originally shipped, and exports as destined for the country where it is intended to land them. The countries named, however, may not be those of origin or destination, as no attempt is made to trace the goods beyond the ports disclosed by the documents presented to the Customs. Very little cargo *in transitu* passes through New Zealand.

The total declared values of the imports in 1894 amounted to £6,788,020, being a decrease on the corresponding total in 1893 of £123,495. These figures are, however, somewhat misleading, as they include specie. The coin brought into the colony in 1894 was nearly double the value of that imported in the previous year, and, if this item be deducted in either case, the decrease on the values of all other articles will be found to reach the sum of £504,102.

The following table gives the value of imports for each of the past ten years:—

Year.	Imports, inclusive of Specie. £	Imports, exclusive of Specie. £
1885	7,479,921	7,278,101
1886	6,759,013	6,319,223
1887	6,245,515	6,064,281
1888	5,941,900	5,430,050
1889	6,308,863	5,980,583
1890	6,260,505	5,928,625
1891	6,503,849	6,431,101
1892	6,943,056	6,742,544
1893	6,911,515	6,494,279
1894	6,788,020	5,990,177

It will be seen that the value of imports, exclusive of specie, fell by degrees from £7,278,101 in 1885 (the first year of the series) to £5,430,050 in 1888; from the latter year it rose till it reached £6,742,544 in 1892; while in 1893 it again showed a decline—3·68 per cent., and in 1894 a further decline of 7·76 per cent.

Since 1885 the value of New Zealand produce exported has been every year in excess of the value of the imports, and since 1887 (despite the fall in prices of wool, mutton, &c.) very greatly in excess. This being the case, it might have been expected that the rise in the value of imports observable during the five years 1888–92 would be maintained in 1893 and 1894. The fall in the two latter years is due to a variety of causes, not by any means indicating generally decreased consumption.

Of £5,990,177, total value of goods imported during 1894, the chief items were as under:—

Articles.	Value. £	Proportion per Cent.
Clothing, drapery, &c.	1,559,966	26·04
Metal, machinery, and implements	836,589	13·96
Tea and sugar	597,057	9·97
Wine, beer, spirits, and tobacco	358,122	5·98
Paper and books	294,380	4·91
Other imports	2,344,063	39·14
	5,990,177	100·00

The value of the clothing, drapery, &c., imported fell from £1,809,046 in 1893 to £1,559,966 in 1894. In 1884, with a population smaller by nearly 20 per cent., the value of the import was £1,819,674. The iron, machinery, and implements imported in 1894 were valued at £836,589, a decrease of £84,037 on the corresponding figures for 1893 (£920,626). In 1884 the import of these goods was valued at £1,255,981.

The value of sugar (including molasses and treacle) imported in 1894 was larger than in any one of the previous ten years. This import for the last three years has averaged £389,926 per annum, but for the three years 1882, 1883, and 1884 the average, with a much smaller population, was £615,207 for each year. The smaller average amount for the last three years is due, not to a reduction in the quantity imported, but partly to a fall in the price of sugar and partly to the fact that the proportion of refined to raw sugar has vastly decreased.

The import of any article in a given year is seldom identical with the amount consumed in that time. To ascertain the latter we must look to the quantity actually entered at the Customs for home consumption and subjected to duty within the twelve months. Thus, the quantity of sugar, including glucose, molasses, and treacle, entered for consumption in 1894 was 63,700,530lb., which gave an average of 93·8lb. for every person, exclusive of Maoris; but the latter are estimated to consume, on an average, about one-fourth as much as Europeans. If the quantity so used be deducted, the average annual consumption per head of the European population will be slightly reduced (92·36lb.).

The following table, giving the consumption per head of sugar in different countries, is, saving the figures for New Zealand, taken from the Victorian Year-book of 1893. The figures stating the consumption of tea, given further on, are taken from the same source.

ANNUAL CONSUMPTION OF SUGAR PER HEAD IN VARIOUS COUNTRIES.

	Lb.		Lb.
South Australia	102·11	Sweden	17·52
Western Australia	93·51	Belgium	15·74
New Zealand	92·36	Germany	15·01
Victoria	90·75	Austria-Hungary	13·23
Tasmania	90·49	Norway	11·37
United Kingdom	68·99	Finland	11·22
Queensland	62·93	Portugal	9·56
New South Wales	60·95	Roumania	7·71
Argentine Republic	50·04	Russia	7·69
Denmark	29·69	Spain	5·11
Holland	28·37	Servia	4·41
Switzerland	22·81	Italy	3·20
France	22·61		

The quantity of tea entered for consumption in 1894 was 4,126,488lb. Supposing Maoris to use, on an average, 1lb. per head per annum, the consumption of tea per head of the population, exclusive of Maoris, would be 6·01lb. in 1894.

The Australasian Colonies seem to be, in proportion to population, the largest tea-consumers in the world. The amount annually used in New South Wales is estimated to be 7·55lb. per head. The consumption of Victoria has been given by the Government Statist of that colony as 10lb., and of Tasmania as 5·35lb.; the figures for the United Kingdom being 4·7lb., for Canada 3·69lb., and for the United States 1·4lb. The consumption in New Zealand is thus somewhat less than in Victoria or New South Wales, but greater per head of population than in the other countries mentioned.

ANNUAL CONSUMPTION OF TEA PER HEAD.

	Lb.		Lb.
Western Australia	10·70	Denmark	0·37
Victoria	10·01	Persia	0·13
Queensland	8·96	Portugal	0·12
New South Wales	7·55	Switzerland	0·10
South Australia	7·24	Norway	0·09
New Zealand	6·01	Germany	0·07
Tasmania	5·35	Belgium	0·03
United Kingdom	4·70	Sweden	0·03
Canada	3·69	France	0·03
United States	1·40	Austria-Hungary	0·02
Holland	1·16	Spain	0·01
Russia	0·61		

During 1894 excise duty was paid on 4,807,360 gallons of beer; and 212,613 gallons of beer, 440,305 gallons of spirits, and 97,934 gallons of wine were entered at the Customs for home consumption. The following table gives the consumption per head of alcoholic liquors by the people, excluding and including Maoris, showing separately the proportions of beer, wine, and spirits for the last twelve years. To the amount of beer manufactured in the colony in each year on which excise duty was paid has been added the amount brought into consumption from imports:—

Year.	Beer.		Spirits.		Wine.	
	Excluding Maoris.	Including Maoris.	Excluding Maoris.	Including Maoris.	Excluding Maoris.	Including Maoris.
	Gal.	Gal.	Gal.	Gal.	Gal.	Gal.
1883	9·435	8·709	1·088	1·005	0·315	0·291
1884	8·769	8·121	0·999	0·923	0·272	0·253
1885	8·414	7·840	0·899	0·825	0·261	0·243
1886	7·861	7·333	0·820	0·765	0·212	0·198
1887	7·651	7·148	0·770	0·719	0·198	0·185
1888	7·133	6·670	0·820	0·767	0·167	0·156
1889	7·624	7·136	0·598	0·560	0·176	0·165
1890	7·899	7·402	0·693	0·649	0·184	0·172
1891	7·646	7·168	0·699	0·655	0·172	0·161
1892	7·807	7·328	0·708	0·664	0·174	0·163
1893	7·716	7·255	0·697	0·656	0·170	0·159
1894	7·391	6·961	0·648	0·611	0·144	0·136

So considerable a reduction in the rate of consumption of these liquors in the last twelve years should give every encouragement to the advocates of temperance principles in the prosecution of their work. And it is most satisfactory to observe how favourably the above rates of consumption in this colony compare with those of other countries. A comparison can be made by means of the following statement of the annual consumption of beer and spirits per head in various places:—*

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* Taken, except as regards New Zealand, from the Victorian Year-book of 1893.

—	Beer.	Spirits.	—	Beer.	Spirits.
	Gal.	Gal.		Gal.	Gal.
United Kingdom ..	28·74	1·00	Tasmania	10·02	0·59
South Australia ..	20·04	0·49	Switzerland ..	8·15	1·04
Germany	19·38	0·95	Austria-Hungary ..	6 83	0·63
Victoria	19 36	1·12	New Zealand (including Maoris)	6·96	0·61
Holland	19·05	2·08	France	4·53	0·85
New South Wales ..	11·94	1·15	Canada	3·05	1·19
United States ..	10·74	1·34	Sweden	2·52	4·20
Queensland	10·23	1·59			

The actual quantity of colonial beer made and used in the colony does not seem to increase in any great degree, as will be seen by the next figures:—

BEER MANUFACTURED IN NEW ZEALAND ON WHICH EXCISE DUTY WAS PAID.

	Gal.		Gal.
1885	4,402,720	1890	4,676,240
1886	4,243,760	1891	4,567,920
1887	4,264,160	1892	4,752,720
1888	4,050,560	1893	4,873,600
1889	4,402,480	1894	4,807,360

The quantity of tobacco entered for consumption in 1894 was 1,371,694lb., a decrease of 90,547lb. on the quantity entered in 1893. This gave a consumption per head of population—including Maoris, who are heavy smokers—of 1·9lb. The average per head for the eight years 1887–94 was 1·96lb.

It appears from the following statement of the consumption of tobacco in different countries that in New Zealand it is, proportionately to population, less than in the chief colonies of Australia, very much less than in the United States, and below the average of most European countries.

AVERAGE ANNUAL CONSUMPTION PER HEAD OF TOBACCO IN VARIOUS COUNTRIES.

	Lb.		Lb.
Holland	6·92	Denmark	2·24
United States	4·40	Canada	2·11
New South Wales	3·53	France	2·05
Queensland	3·49	New Zealand	1·90
Western Australia	3·26	Sweden	1·87
Switzerland	3 24	Tasmania	1·85
Belgium	3·15	Russia	1·82
Germany	3·00	South Australia	1 70
Victoria	2·93	United Kingdom	1·38
Austria-Hungary	2·73	Italy	1·28
Finland	2·73	Spain	1·10
Norway	2·29		

The imports from the United Kingdom to New Zealand in 1894 were valued at £3,949,770, or a decrease of £532,185 on the imports from this source for the previous year. From Australia and Tasmania the imports were £1,740,965, an increase of £329,500 on the amount in 1893.

The following are the values of imports from different countries in 1893 and 1894, given in the order of the increase or decrease from each country:—

Country.	1893. £	1894. £	Increase. £
Australia and Tasmania	1,411,465	1,740,965	329,500
Fiji and Norfolk Island	143,315	223,218	79,903
Mauritius	205	31,431	31,226
United States	379,378	394,691	15,313
Dominion of Canada	2,433	15,367	12,934
Belgium	6,712	17,743	11,031
Sweden and Norway	128	4,435	4,307
Japan	13,614	17,526	3,912
Africa	230	2,588	2,358
France	11,856	13,898	2,042
Switzerland	2,101	4,010	1,909
Asia Minor	654	2,558	1,904
Philippine Islands	3,615	5,450	1,835
Holland	4,771	6,072	1,301
Spain	634	1,867	1,233
Portugal	357	1,100	743
Russia	..	645	645
West Indies	554	896	342
Arabia	..	175	175
British Guiana	35	60	25
Denmark	157	165	8
			Decrease.
United Kingdom	4,481,955	3,949,770	532,185
India and Ceylon	265,760	193,381	72,379
Hongkong and China	37,039	26,422	10,617
Pacific Islands	57,071	52,197	4,874
Italy	5,107	2,937	2,170
Cape Colony	1,563	16	1,547
Singapore	10,044	8,617	1,427
Germany	68,665	68,163	502
Greece	1,203	966	237
Sumatra	116	..	116
Java	156	85	71
Brazil	22	9	13
Austria	599	597	2
Malta	1	..	1

The imports from India and Ceylon show a decrease of £72,379, or nearly 28 per cent. on the figures for 1893, but are, notwithstanding, some £22,000 in excess of the imports from those countries in 1892.

The values of imports in each provincial district during 1894 were as under :—

	£
Auckland	1,596,985
Taranaki	49,127
Hawke's Bay	206,291
Wellington	1,708,110
Marlborough	12,217
Nelson	140,648
Westland	39,293
Canterbury	1,435,112
Otago	1,572,960

The value of imports by parcel-post (£27,277) must be added to the above figures in order to make up the total (including specie) of £6,788,020.

The Customs revenue for the year 1894 amounted to £1,572,467, and the excise duties to £63,875. The revenue from Customs was £2 6s. 4d. per head of population excluding Maoris, and £2 3s. 7d. if they be included. In 1887 the Customs revenue was £2 2s. 11d. per head of European population, and from that time the proportion increased slowly year by year until 1892, when it reached £2 11s. 6d. per head. During the last two years, however, there has been a falling-off. Details for ten years are given :—

CUSTOMS REVENUE PER HEAD OF POPULATION.

	£	s.	d.		£	s.	d.
1885	2	9	10	1890	2	9	3
1886	2	5	1	1891	2	9	7
1887	2	2	11	1892	2	11	6
1888	2	6	2	1893	2	10	4
1889	2	7	10	1894	2	6	4

The rates of duty levied in 1894 included 15s. and 16s. per gallon on spirits (perfumed, 21s.); 7s. per pound on cigars, cigarettes, and snuff; 3s. 6d. per pound on manufactured and 2s. on unmanufactured tobacco. Sparkling wine was charged 9s. a gallon; Australian, 5s.; other kinds, 6s.; ale and beer, 1s. 6d. The duty on tea was 6d. per pound; on cocoa, 3d.; raw coffee, 3d.; roasted, 5d. Sugar, molasses, and treacle paid ½d., and glucose 1d. per pound. Opium was charged 40s. per pound. The remainder of the Customs revenue, with small exception, was made up of charges on goods by weight, *ad valorem* duties ranging from 5 to 25 per cent., and receipts from the foreign parcels post. There was also an excise duty of 1s. per pound on tobacco, 1s. 6d. per pound on cigars and cigarettes, and 3d. per gallon on beer manufactured in the colony. Proposals for the alteration of these rates of duty and the exemptions are now (31st July, 1895,) under the consideration of the Legislature.

The value of the goods imported during 1894 free of duty was £1,871,772, or 31·25 per cent. of the total; and the goods on which duty was payable were valued at £4,118,405, or 68·75 per cent. The free imports from Australasia amounted to £385,119, and the dutiable to £560,391, being 40·73 per cent. and 59·27 per cent.

respectively. Of goods from the United Kingdom, £1,181,761, or only 29·94 per cent., were free; leaving £2,765,621, or 70·06 per cent., to pay duty. A new table has been inserted in the statistical volume for 1894 (p. 229), showing for the years 1893 and 1894 the value of merchandise imported into New Zealand from each country or colony, and distinguishing in every case the amount of the free from the amount of the dutiable imports. The proportions that the free and the dutiable imports respectively bear to the total are likewise stated in each instance.

The value of all the exports in 1894 was £9,231,047; the value of New Zealand produce exported, £9,085,148: being at the rate of £13 7s. 6d. per head of population. The following table gives the values of the several exports of New Zealand produce in each of the past ten years:—

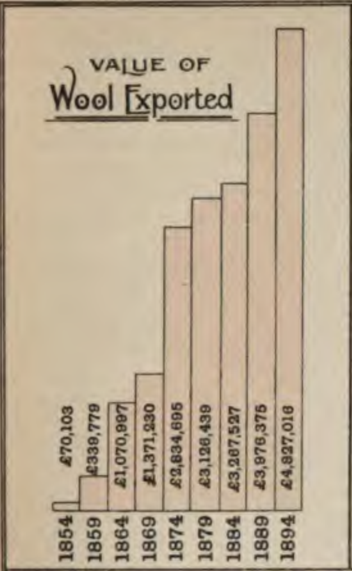
EXPORTS OF NEW ZEALAND PRODUCE.

Year	Wool.	Gold.	Frozen Meat.	Butter and Cheese.	Agricultural Produce.	Manufactures	Other N.Z. Produce.	Total.
	£	£	£	£	£	£	£	£
1885	3,205,275	890,056	373,857	138,129	688,415	120,539	1,175,640	6,591,911
1886	3,072,971	934,648	427,193	151,194	688,804	109,656	997,216	6,386,682
1887	3,321,074	747,878	455,870	109,383	588,022	124,382	1,204,372	6,551,081
1888	3,115,098	914,309	628,800	197,170	905,907	233,383	1,260,461	7,255,128
1889	3,976,375	785,490	783,374	213,945	1,424,297	569,880	1,288,647	9,042,008
1890	4,150,599	751,360	1,087,617	207,687	1,289,864	547,947	1,393,687	9,428,761
1891	4,129,686	1,007,172	1,194,724	236,933	894,467	420,357	1,516,755	9,400,094
1892	4,313,307	951,963	1,033,377	318,204	1,035,637	367,677	1,345,703	9,365,868
1893	3,774,738	915,921	1,085,167	354,271	716,546	345,636	1,365,164	8,557,443
1894	4,827,016	887,865	1,194,545	366,483	317,655	224,958	1,266,626	9,085,148

The most important items of export under the heading "Other New Zealand Produce" are coal, silver, minerals, fish, oysters, fungus, kauri-gum, timber, bacon, salted and preserved meats, tallow, sheep- and rabbit-skins, hides, sausage-skins, and live stock. The aggregate value of these in 1894 was £1,237,058.

The above table shows that the value of the exports of New Zealand produce fell from £9,428,761 in 1890 to £9,400,094 in 1891, and again from £9,365,868 in 1892 to £8,557,443 in 1893, but rose in 1894 to £9,085,148, an increase of £527,705 on the figures for the previous year. The exports for any two calendar years may vary considerably, according as the bulk of a season's wool-clip is shipped at the close of one year or at the beginning of the next; and for comparison of quantities it is well to take the figures for two successive years ending 31st March, in order to include the whole of one clip in each year. The following are the figures for the years ended 31st March, 1894, and 31st March, 1895, with the increase or decrease on each item.

The quantities exported are shown, with the increase or decrease for 1894–95:—



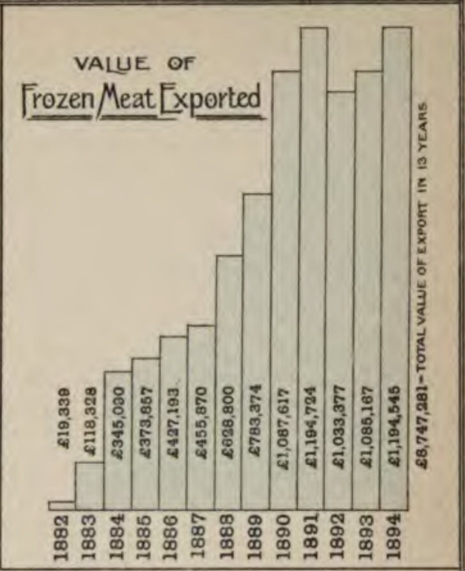
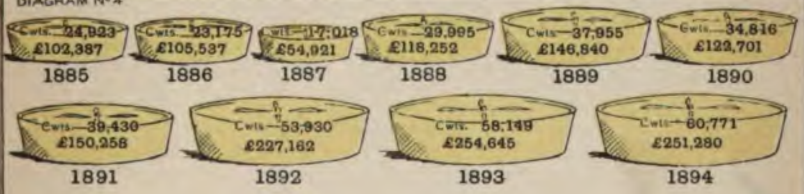
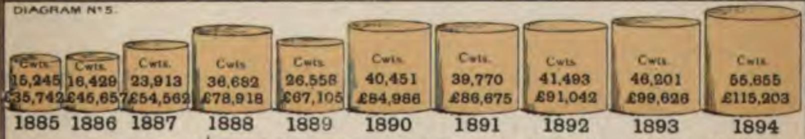


DIAGRAM Nº 4



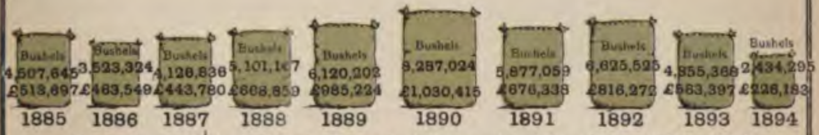
Quantity and Value of Butter Exported for each of Ten Years, 1885 to 1894.

DIAGRAM Nº 5.



Quantity and Value of Cheese Exported for each of Ten Years, 1885 to 1894.

DIAGRAM Nº 6



Quantity and Value of Grain Exported for each of Ten Years, 1885 to 1894.

WOOL, FROZEN MEAT, BUTTER, CHEESE & GRAIN.

T. W. Grant, delt.

QUANTITIES OF THE PRINCIPAL ARTICLES OF NEW ZEALAND PRODUCE EXPORTED.

Items.	Year 1893-94.	Year 1894-95.	Increase in 1894-95.	Decrease in 1894-95.
The Mine:—				
Coal .. .. Tons	69,234	82,409	13,175	..
Gold .. .. Oz.	240,697	222,519	..	18,178
Silver .. .. "	47,597	60,836	13,239	..
Minerals .. .. Tons	1,170	303	..	867
The Fisheries:—				
Fish .. .. Cwt.	5,076	5,865	789	..
Oysters .. .. Doz.	650,778	614,775	..	36,003
The Forest:—				
Fungus .. .. Cwt.	4,898	4,270	..	628
Gum (kauri) .. Tons	8,235	8,104	..	131
Timber (sawn and hewn) Ft.	27,243,442	32,660,036	5,416,594	..
Animals and Produce:—				
Bacon and hams .. Cwt.	1,368	1,725	357	..
Beef (salted) .. "	5,680	5,356	..	324
Butter .. .. "	62,500	66,283	3,783	..
Cheese .. .. "	37,361	78,650	41,289	..
Hides .. .. No.	11,517	8,219	..	3,298
Live-stock .. .. "	9,150	17,717	8,567	..
Meat (preserved) .. Cwt.	23,731	32,977	9,246	..
" (frozen) .. "	873,032	1,122,242	249,210	..
Sausage-skins .. "	5,200	7,260	2,060	..
Skins (rabbit) .. No.	17,636,460	14,986,008	..	2,650,452
" (sheep) .. "	2,574,702	2,729,129	154,427	..
Tallow .. .. Tons	8,094	12,139	4,045	..
Wool .. .. Lb.	125,249,212	132,025,538	6,776,326	..
Agricultural Products:—				
Bran and sharps .. Tons	3,314	1,875	..	1,439
Chaff .. .. "	40	27	..	13
Flour .. .. "	2,025	807	..	1,218
Grain (barley) .. Bush.	29,084	19,063	..	10,021
" (beans and peas) "	167,194	191,906	24,712	..
" (malt) .. "	34,370	47,155	12,785	..
" (oats) .. "	1,806,411	2,210,726	404,315	..
" (wheat) .. "	2,058,265	81,431	..	1,976,834
" (maize) .. "	29,986	422	..	29,564
Hops .. .. Cwt.	1,786	2,136	350	..
Meal (oat) .. .. "	20,618	25,743	5,125	..
Potatoes .. .. Tons	5,734	2,207	..	3,527
Seeds (grass and clover) Cwt.	30,516	25,576	..	4,940
Manufactures:—				
Leather .. .. "	13,765	30,712	16,947	..
Phormium .. .. Tons	10,410	3,258	..	7,152

This statement shows, to a great extent, an increase in the demand for the staple articles of New Zealand produce.

Some of the most important proportional increases are the following:—

Export of		Rate of Increase per Cent. in 1894-95.
Leather	Cwt.	123·11
Cheese	"	110·51
Live-stock	No.	93·65
Tallow	Tons	49·96
Sausage-skins	Cwt.	39·62
Preserved meat	"	38·96
Malt	Bush.	37·20
Frozen meat	Cwt.	28·55
Silver	Oz.	27·81

Export of		Rate of Increase per Cent. in 1894-95.
Oatmeal	Cwt.	24·86
Oats	Bush.	22·38
Sawn timber	Ft.	19·88
Coal	Tons	19·03
Beans and peas	Bush.	14·78
Butter	Cwt.	6·05
Sheep-skins	No.	6·00
Wool	Lb.	5·49

On the other hand, the decline in the quantities of gold, kauri-gum, wheat, barley, potatoes, grass-seed, hides, and Phormium exported is very considerable.

The declared values of the chief articles exported in the calendar year 1894 are given in the table immediately below:—

	£
THE MINE.	
Coal	73,438
Gold	887,865
Silver and minerals	9,080
Total	970,383
THE FISHERIES.	
Fish	6,228
Oysters	2,676
Other	1,067
Total	9,971
THE FOREST.	
Fungus	6,983
Kauri-gum	404,567
Timber—	
Sawn and hewn	116,116
Other	7,875
Total	535,541
ANIMALS AND PRODUCE.	
Bacon and hams	6,736
Beef and pork (salted)	6,261
Butter	251,280
Cheese	115,203
Hides	5,226
Live-stock—	
Cattle	2,439
Horses	16,448
Sheep	33,159
Pigs and other live-stock	1,032
Preserved meats	57,325
Frozen meats	1,194,545
Rabbit-skins	87,993
Sausage-skins	34,208
Sheep-skins and pelts	162,644
Tallow	204,499
Wool	4,827,016
Other	5,981
Total	7,011,995

	£
AGRICULTURAL PRODUCTS.	
Bran and sharps	4,166
Chaff	118
Flour	6,451
Grain—	
Barley	2,836
Beans and peas	24,261
Maize	1,863
Malt	13,082
Oats	156,694
Wheat	27,447
Hops	9,986
Oatmeal	12,066
Potatoes	5,218
Seeds (grass and clover)	47,323
Other	6,144
Total	317,655
MANUFACTURES.	
Ale and beer	2,066
Apparel	3,439
Cordage	1,409
Leather	91,178
Phormium (New Zealand hemp)	66,256
Soap	3,907
Woollen manufactures	9,736
Other manufactures	46,967
Total	224,958
Miscellaneous	14,645
Total exports (colonial produce and manufactures)	9,085,148
Specie	9,497
Other exports (British and foreign)	136,402
Total exports	£9,231,047

The re-export trade of the colony would seem from the subjoined figures to have been almost stationary for the last ten years:—

EXPORTS OF BRITISH, FOREIGN, AND OTHER COLONIAL PRODUCE (EXCLUDING SPECIE).

	£		£
1885	146,951	1890	140,555
1886	147,831	1891	160,765
1887	129,691	1892	125,052
1888	148,078	1893	123,402
1889	139,347	1894	136,402

With these sums may be contrasted the re-export trade of New South Wales—a colony having less than double the population of New Zealand—which, exclusive of specie, amounted in 1894 to £2,676,606.

The quantity of wool exported in 1894 was 144,295,154lb., valued at £4,827,016. The annual production and the increase can be better estimated by taking the exports for the twelve months immediately preceding the commencement of shearing, and adding thereto the quantity used in the colony for manufacturing purposes.

The following shows the produce for each of the last ten years ending with the 30th September:—

Year ending 30th September.	Quantity exported.	Quantity purchased by Local Mills.	Total Annual Produce.
	Lb.	Lb.	Lb.
1885	78,174,034	1,922,932	80,096,966
1886	89,485,757	1,879,999	91,365,756
1887	95,914,181	2,001,155	97,915,336
1888	89,276,268	4,079,563	93,355,831
1889	95,618,507	3,556,004	99,174,511
1890	102,522,185	2,979,293	105,501,478
1891	108,619,473	2,918,073	111,537,546
1892	110,860,050	3,388,954	114,249,004
1893	119,643,874	2,629,855	122,273,729
1894	128,480,457	2,476,155	130,956,612

From these figures it appears that the wool-clip has increased about 64 per cent. within the last ten years, and this notwithstanding the large increase in the export of rabbit-skins, from 9,168,114 in 1885 to 14,267,385 in 1894,—which does not indicate any great relief from the rabbit-pest.

The increase in the wool-production is of course mainly due to the greater number of sheep—namely, 20,230,829 in April, 1894, against 14,546,801 in May, 1885. It will be apparent from the following table that the tendency of increase is towards the multiplication of the smaller flocks, whose owners are better able to cope with the rabbit difficulty than the large runholders:—

NUMBER OF FLOCKS, 1885 TO 1894.

Size of Flocks.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.
Under 500	5,622	6,024	6,247	6,579	7,063	7,662	8,272	8,822	9,629	10,314
500 and under 1,000	1,146	1,189	1,139	1,182	1,381	1,528	1,691	2,033	2,239	2,427
1,000 " 2,000	718	747	723	794	826	854	969	1,193	1,315	1,409
2,000 " 5,000	505	532	531	524	597	586	666	761	836	933
5,000 " 10,000	270	263	289	287	279	283	287	314	341	345
10,000 " 20,000	213	228	221	213	239	236	239	231	241	230
20,000 and upwards	157	166	166	166	152	160	169	176	178	179
Total ..	8,631	9,149	9,316	9,745	10,537	11,309	12,293	13,530	14,779	15,837

The following table,* showing the estimated wool-supply of the world since 1860, put forth by the London Board of Trade, is not without interest in this connection :—

Sources of Supply.	1860.	1870.	1880.	1889.
	Lb.	Lb.	Lb.	Lb.
United Kingdom ..	140,000,000	150,000,000	149,000,000	184,000,000
Continent of Europe	500,000,000	485,000,000	450,000,000	450,000,000
North America ..	110,000,000	176,000,000	270,000,000	330,000,000
Australasia ..	60,000,000	175,000,000	308,000,000	450,000,000†
Cape of Good Hope	26,000,000	43,000,000	60,000,000	70,000,000
River Plate ..	43,000,000	197,000,000	256,000,000	360,000,000
Other countries ..	76,000,900	69,000,000	133,000,000	156,000,000
Grand total ..	955,000,000	1,295,000,000	1,626,000,000	1,950,000,000

The centres of wool-production have gradually shifted, as will be seen by the next table,* showing the percentage of the total imports into the United Kingdom at different periods :—

——	1844.	1850.	1860.	1870.	1880.	1890.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
British Possessions—						
Australasia	26·8	52·5	39·9	66·5	64·9	66·2
South Africa ..	3·3	7·7	11·2	12·5	11·1	13.8
East Indies	4·2	4·7	13·6	4·2	6·3	5·4
Germany	33·2	12·3	12·4	1·7	1·5	1·1
South America ..	5·7	7·1	6·0	4·8	2·2	1·8

At the beginning of this century most of the merino wool required for manufacture in England was obtained from Spain. In 1820 (about) Spanish wool was superseded by merino wool from Saxony and Silesia; some twenty years later, Australasian wools began to take the place of the German merino, and have ever since held command of the market.

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* Taken from "Wool and Manufactures of Wool," published by the Bureau of Statistics, Treasury Department, U.S.A.

† Increased to 660,000,000lb. in 1893.

The following paragraphs, as to increase of population in Europe and America creating a demand for Australasian wools, are taken from a report made in February, 1892, to the Department of State of the United States by Consul-General Bourn :—

> With an increased density of population in Europe there has been a gradual decrease in the number of sheep, as lands formerly used for pasturage are converted into tillage lands to meet the increased demand for food. From 1860 to 1890 the population of Europe increased from 286,000,000 to 356,000,000—an increase of 70,000,000, or about 25 per cent., necessitating a tillage of at least 25 per cent. more land to supply food for this increase.
>
> During this period the number of sheep in Europe decreased from 229,600,000 in 1860 to 192,240,000 in 1890—a decrease of 37,000,000, or about 16 per cent.; while the number in the chief extra European wool-producing and -exporting countries increased from 63,200,000 in 1860 to 264,500,000 at the date of the latest estimates. But Europe in 1890 consumed fully 66 per cent. more wool than in 1860, while there were 16 per cent. less sheep to supply the requirement. It is easy, therefore, to see why new fields have been sought in other continents for the deficiencies both in food and clothing.
>
> In 1860 there were not more than 40,200,000 sheep in the La Plata country, Australia, and South Africa, or scarcely 18 per cent. of the number in Europe. In 1890 this amount had increased to 221,500,000, or about the number in Europe in 1860.
>
> There were 8,806,500 sheep in Italy in 1860, but in 1875 there were only 6,977,000. The number then grew again to 8,596,000 in 1881, to be again reduced to 6,900,000 in 1890—a decrease of 21 per cent. since 1860, as compared with 16-per-cent. decrease for all Europe.
>
> In the United States the process has been substantially the same. The increasing density of population in the east has gradually driven the flocks westward into newer territory, where they have largely increased, though not so rapidly as in the La Plata country, Australia, and South Africa. From 23,000,000 in 1860 they increased to 41,000,000 in 1870. At this time the market for wool was so depressed that the farmers found it profitable to kill upwards of 9,000,000, thus reducing the amount to 31,000,000. Since then the gradual increase brought the number to about 50,000,000 in 1884, to be again reduced by the competition of Australian wool to about 43,000,000 on the 1st January, 1891. This variation in the number of sheep has, however, its compensation in the greatly increased production per head. The yield in 1871 was about 5lb. for each sheep, while in 1884 and 1891 it was respectively about 6lb. and 7lb.

The amount of gold exported in 1894 was 221,614oz.

The total quantity of gold entered for duty to the 31st December, 1894, which may be reckoned as approximately the amount obtained in the colony, was 12,756,722oz., of the value of £50,188,838.

Frozen meat now takes second place among the exports of New Zealand produce. In 1894, 1,025,242cwt., valued at £1,194,545, were shipped in the colony. An account of the development of the industry was given in a special article in the Year-book, 1894. The total export for each year since the commencement of the trade has been :—

Year.	Lb.
1882	1,707,328
1883	9,853,200
1884	28,445,228
1885	33,204,976
1886	38,758,160
1887	45,035,984
1888	61,857,376
1889	73,564,064
1890	100,934,756
1891	110,199,082
1892	97,636,557
1893	100,262,453
1894	114,827,216

To ascertain the total value of the meat-export in 1894 it is necessary to take into consideration, with the amount of £1,194,545, value of frozen meat before stated, the value of preserved meats, £57,325; of salted beef and pork, £6,261; and of bacon and hams, £6,736.

Beef, mutton, lamb, and pork, &c., are used in the United Kingdom according to the following proportions: Beef, 52 per cent.; mutton and lamb, 24 per cent; pork, &c., 24 per cent. To the 24 per cent. of mutton and lamb, New Zealand contributes 2·02 per cent., the Argentine Republic 1·03 per cent., and Australia 0·35 per cent., making altogether 3·40 per cent. So that the total imports of frozen mutton at present represent only 3·40 per cent. of the total meat consumption of the United Kingdom.

The value of the grain exported in 1894 was £226,183. The grain exports were made up as under:—

	Bushels.	£
Wheat	228,904	27,447
Oats	1,963,288	156,694
Barley	17,854	2,836
Malt	47,001	13,082
Maize	13,921	1,863
Peas and beans	163,327	24,261
Total value		£226,183

The quantity of butter exported amounted to 60,771cwt., the declared value of which was £251,280. Of this quantity, 58,845cwt., valued at £241,593, were shipped to the United Kingdom; 808cwt., value £4,072, to Victoria; 488cwt., value £2,351, to Fiji; and 375cwt., value £2,042, to the South Seas.

If the export of butter is to assume any large dimensions it must be through the production of an article suitable to the requirements of the English market, on which the colony has for the present to rely. It has been satisfactorily proved that butter from New Zealand can be delivered in good condition in England, and that for good samples remunerative prices are obtainable; but it is necessary that the butter sent should be not only sound, but also uniform in quality and colour. Such uniformity can be obtained only by the methods used in butter-factories. Upon the multiplication of these factories the future of the butter-export trade, with all its great possibilities, seems to depend.

The cheese exported was 55,655cwt., of a declared value of £115,203, of which 54,540cwt., valued at £111,917, were sent to the United Kingdom; and 678cwt., value £2,025, to Australia. While the quantity of butter exported—60,771cwt.—in 1894 shows an increase of 143 per cent. on the quantity exported in 1885, the increase in the export of cheese during the ten-year period has been at the rate of 265 per cent.—55,655cwt. in 1894, as against 15,245cwt. in 1885.

The following statement shows the total quantity of butter and cheese exported in the past ten years, and the amount of either commodity sent to the United Kingdom :—

Year.	Total Export of Butter	Butter exported to the United Kingdom.	Total Export of Cheese.	Cheese exported to the United Kingdom.
	Cwt.	Cwt.	Cwt.	Cwt.
1885	24,923	273	15,245	272¾
1886	23,175	635	16,429	17
1887	17,018	6,937	23,913	9,900¾
1888	29,995	11,460	36,682	25,436¼
1889	37,955	21,099	26,558	7,633
1890	34,816	26,579	40,451	31,043
1891	39,430	28,989	39,770	29,565
1892	53,930	41,509	41,493	30,000
1893	58,149	52,363	46,201	41,567
1894	60,771	58,845	55,655	54,540

The export of phormium fell from 12,587 tons in 1893 to 4,677 tons in 1894, a decrease of nearly 63 per cent. The market price continues low—averaging under £15 a ton—a state of things not encouraging to producers. Any considerable rise in the value of the fibre will doubtless result in temporarily increasing the output; but a large permanent development of this industry depends on the cultivation and careful selection of the plants used, and on improvements in the method of preparing the fibre.

There were 8,338 tons of kauri-gum, valued at the rate of £48 10s. 5d. a ton, exported from the colony in 1894. This gum is obtained only in the extreme northern part of the colony.

The following table gives the values of the exports from each port in New Zealand for the last two years, arranged in order of magnitude for 1894 :—

	1894.	1893.
	£	£
Lyttelton	1,598,811	1,863,113
Wellington	1,558,334	1,117,384
Auckland	1,174,920	1,256,450
Napier	1,135,155	801,530
Dunedin	955,862	1,220,939
Invercargill and Bluff	658,231	681,023
Timaru	523,876	540,793
Wanganui	345,279	225,408
Oamaru	259,801	272,033
Greymouth	232,031	266,440
Poverty Bay	220,536	166,051
Wairau and Picton	164,398	158,284
Hokitika	91,470	99,637
Nelson	72,606	64,382
New Plymouth and Waitara ..	72,450	121,405
Kaipara	66,738	60,690
Patea	55,019	24,981
Westport	39,430	37,545
Tauranga	3	3
Russell	..	2,547

The exports from the North and Middle Islands respectively during the two years were as under:—

Year.	North Island.	Middle Island.	Proportion to Total Export.	
	£	£	North Island.	Middle Island.
1893	3,776,449	5,204,189	42·05	57·95
1894	4,628,434	4,596,516	50·17	49·83

It will be observed that last year the North Island furnished quite half the total volume of exports, against a little more than two-fifths in 1893.

The total value of the external trade in 1894 was £16,019,067, equivalent to £23 11s. 9d. per head of the population, excluding Maoris. The figures given further on show that the ratio of trade to population has varied but little for several years. The highest record was in 1873, when the total trade per head reached £41 19s. 3d.; the imports, in consequence of the large expenditure of borrowed money, amounting at that time to £22 9s. 4d. per head, against £9 19s. 11d. in 1894.

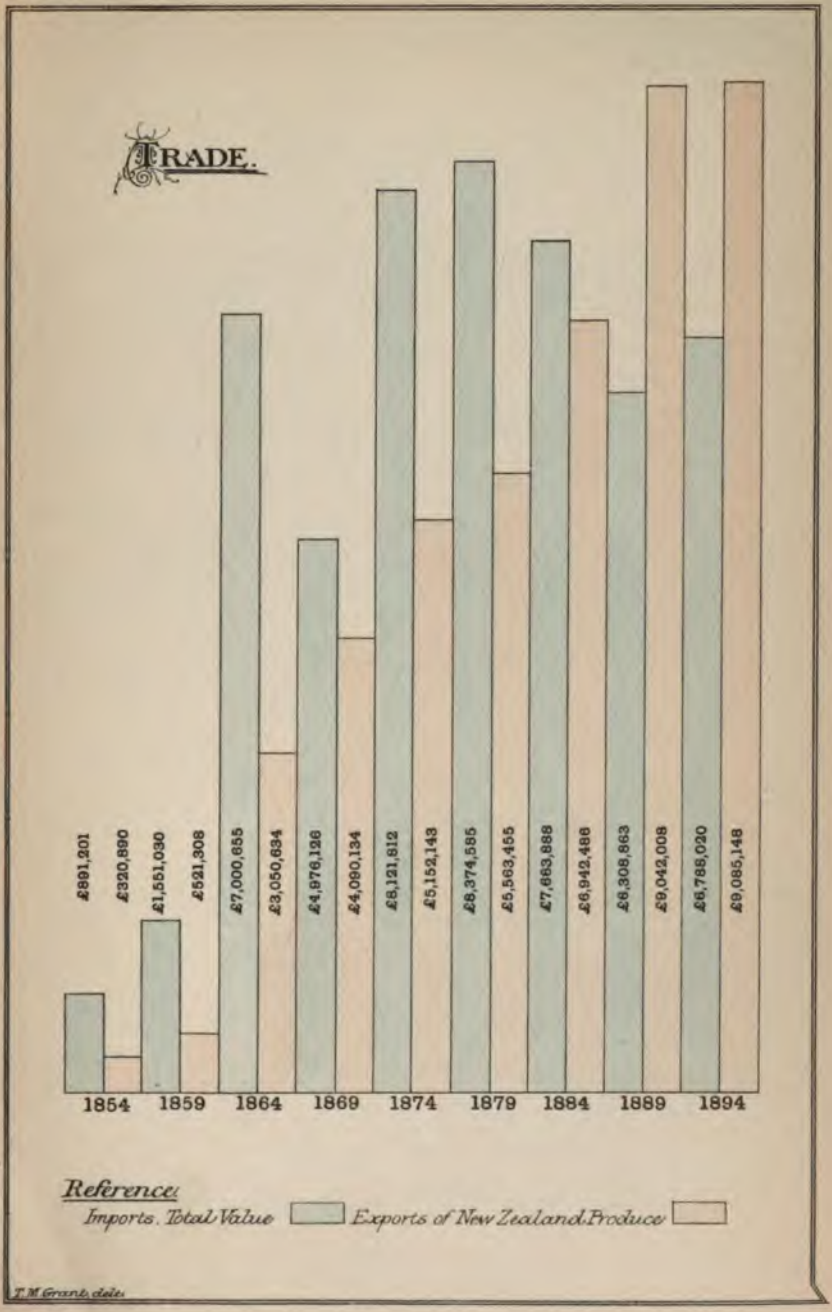
It has been customary to exclude the Maoris in estimating the trade per head, for their industries and necessities swell the volume of trade in comparatively so slight a measure that the amount per head of European population can be more truly ascertained by omitting them altogether.

The values of imports and exports per head of population, excluding Maoris, were, for each of the past ten years, as follow:—

Year.	Imports per Head.	Exports per Head.	Total.
	£ s. d.	£ s. d.	£ s. d.
1885	13 4 9	12 1 5	25 6 2
1886	11 12 2	11 9 3	23 1 5
1887	10 9 5	11 10 3	21 19 8
1888	9 16 4	12 16 7	22 12 11
1889	10 5 6	15 4 5	25 9 11
1890	10 0 2	15 13 8	25 13 10
1891	10 6 6	15 3 10	25 10 4
1892	10 16 3	14 16 11	25 13 2
1893	10 9 0	13 11 9	24 0 9
1894	9 19 11	13 11 10	23 11 9

The trade with the United Kingdom amounted to £11,853,263, comprising nearly 74 per cent. of the total.

With the Australian Colonies and Tasmania trade was done during 1894 to the value of £2,611,365, of which New South Wales claimed £1,415,905 and Victoria £1,013,255, made up as follows:—


TRADE.
£891,201
£320,890
£1,551,030
£521,308
£7,000,655
£3,050,634
£4,976,126
£4,090,134
£8,121,812
£5,152,143
£8,374,585
£5,563,455
£7,663,888
£6,942,486
£6,308,863
£9,042,008
£6,788,020
£9,085,148
1854
1859
1864
1869
1874
1879
1884
1889
1894
Reference.
Imports. Total Value
Exports of New Zealand Produce
T. M. Grant, delt.

EXPORTS FROM NEW ZEALAND.

	£
To New South Wales, 1894	500,755
„ Victoria, 1894	319,637

EXPORTS TO NEW ZEALAND.

	£
From New South Wales, 1894	915,150
„ Victoria, 1894	693,618

The latter amounts are the declared values of the imports into New Zealand from the colonies mentioned, not their export-value as given in the New South Wales and Victorian returns.

Included in the exports from New South Wales is coal valued at £102,610, and gold coin, £445,000. The exports from Victoria include specie to the amount of £350,290.

The trade with Fiji increased somewhat during the year. In 1890 it was £184,684; in 1891, £221,603; in 1892, £214,183; in 1893, £194,729; and in 1894, £266,239. The trade with the other Pacific Islands (including Norfolk Island) increased from £150,206 in 1893 to £159,916 in 1894.

Of the exports to the United States in 1894 the values of the principal New Zealand products were: Kauri-gum, £207,275; phormium, £13,612; gold, £48,412; sausage-skins, £7,051; and sheepskins, £1,024.

The following table shows the value of the total trade with the United States for each of the past ten years:—

TRADE WITH THE UNITED STATES.

Year.	Imports from		Exports to		Total Trade.
	Atlantic Ports.	Pacific Ports.	Atlantic Ports.	Pacific Ports.	
	£	£	£	£	£
1885	366,873	34,659	130,053	274,825	806,410
1886	304,571	32,751	166,926	80,474	584,722
1887	263,377	35,359	241,388	168,092	708,216
1888	285,864	37,205	204,302	119,414	646,785
1889	307,156	35,280	242,778	98,584	683,798
1890	321,047	34,348	364,332	218,802	938,529
1891	317,913	43,882	395,386	119,822	877,003
1892	344,799	36,828	459,314	61,483	902,424
1893	345,743	33,635	430,842	65,706	875,926
1894	359,196	35,495	230,829	56,367	681,887

The trade with India and Ceylon reached a total of £195,718, against £273,540 in 1893. The imports—tea, rice, castor-oil, woolpacks, &c.—were reckoned at £193,381, leaving a balance of only £2,337 for exports.

The following table gives the value of the imports and exports of the Australasian Colonies for the year 1894:—

Colony.	Total Value of		Excess of	
	Imports.	Exports.	Imports over Exports.	Exports over Imports.
	£	£	£	£
Queensland	4,241,090	8,336,731	..	4,095,641
New South Wales	15,801,941	20,577,673	..	4,775,732
Victoria	12,470,599	14,026,546	..	1,555,947
South Australia	6,226,690	7,301,774	..	1,075,084
Western Australia (1893) ..	1,400,821	878,147	522,674	..
Tasmania	979,676	1,489,041	..	509,365
New Zealand	6,788,020	9,231,047	..	2,443,027

In the preceding table is given the total trade inwards and outwards of each colony, counting twice over the value of goods produced in one colony and carried thence into another, and reckoning the same goods three times where they are imported from without into one colony and re-exported thence in the same year into another colony. But, in order to form a just idea of the trade of the Australasian Colonies as a whole, it is necessary to eliminate the intercolonial traffic altogether. From the following table the value of imports and exports exchanged between the various colonies has accordingly been excluded :—

EXTERNAL TRADE OF AUSTRALASIA.

Year.	Total Trade.	Imports.	Exports.	Excess of Imports.	Excess of Exports.
	£	£	£	£	£
1885 ..	72,220,444	41,136,038	31,084,406	10,051,632	..
1890 ..	75,143,818	38,451,160	36,692,658	1,758,502	..
1891 ..	84,565,778	41,325,033	43,240,745	..	1,915,712
1892 ..	75,325,933	34,529,501	40,796,432	..	6,266,931
1893 ..	67,788,738	27,925,990	39,862,748	..	11,936,758

It will be observed that in the year 1885 the excess of imports over exports for Australasia amounted to no less a sum than £10,051,632, and that five years later the excess of imports had fallen to £1,758,502. In 1891 the position was completely reversed, the exports exceeding the imports by £1,915,712. This excess increased to £6,266,931 in the following year (1892), and to £11,936,758 in 1893. The change indicates that as a result of recent financial disturbances the purchasing power of these colonies has considerably lessened.

The fall in prices of colonial produce, to which the reduction that has taken place of late in the total value of exports is due, is generally considered to have been the result of several causes working simultaneously, viz. : the appreciation of gold, greater competition of producers throughout the world, increase in facilities of transport and communication, and improvement of machinery used in production.

It has, however, been argued that prices are really regulated by credit; that credit is but slightly affected by the amount of money or gold in existence, and that the whole volume of credit throughout the world has been enormously lessened since and as the result of the Baring crisis, in 1890. The *Statist* (October 27th, 1894) thus alludes to this:—

> Until the volume of credit expands it is impossible that prices should rise. On the contrary, every contraction of credit has necessitated a fall in prices. The newer countries, which produce food and raw materials for the older countries, have been compelled to sell at whatever prices they could obtain, because they could not get credit in London, and because they were compelled to meet their obligations. But, as distrust at home here prevented speculation, there was a paucity of buyers; and such buyers as there were, not being very eager, held aloof in the hope of getting better and ever better terms. So the embarrassments of the producing countries, and the distrust of the capitalist countries, have made it more difficult to carry on transactions, and at last sales have been effected only by continually reducing prices.
>
> There is nothing mysterious, or puzzling, or incomprehensible in all this when it is looked at from the right standpoint. And it is perfectly clear that no increase in the gold production could have any material influence upon what has happened. Gold is employed only to a very small fractional extent, either in international dealings or in the wholesale markets for commodities within the same country, and the mere additions made to the amount of gold could consequently have no effect upon prices. If credit had been good, the increase in the gold output would have enabled the banks to lend and discount more freely than before; and every addition to the loans and discounts would have been an addition to the volume of credit existing, and so would have tended to send up prices.

The trade per head of the population in each of the colonies was as follows:—

TRADE PER HEAD OF THE POPULATION IN 1894.

Colony.	Mean Population.	Imports.			Exports.			Total Trade.		
		£	s.	d.	£	s.	d.	£	s.	d.
Queensland	438,727	9	13	4	19	0	1	28	13	5
New South Wales	1,237,410	12	15	5	16	12	7	29	8	0
Victoria	1,174,730	10	12	4	11	18	10	22	11	2
South Australia	343,625	18	2	5	21	5	0	39	7	5
Western Australia (1893) ..	62,510	22	8	2	14	1	0	36	9	2
Tasmania	155,940	6	5	8	9	11	0	15	16	8
New Zealand (exclusive of Maoris)	679,196	9	19	11	13	11	10	23	11	9

The values of the exports of the Australian Colonies—more especially New South Wales, Victoria, and South Australia—are largely increased by the inclusion of articles the produce or manufacture of other colonies and countries.

The value of home productions or manufactures exported from each colony in 1893, and the rate per head of mean population, were as follow:—

Colony.	Home Produce exported.	Per Head of Population.
	£	£ s. d.
Queensland	9,080,599	21 5 6
New South Wales	17,094,213	14 2 5
Victoria	10,293,926	8 15 11
South Australia	3,295,475	9 15 11
Western Australia	870,437	13 18 6
Tasmania	1,336,586	8 13 10
New Zealand	8,557,443	12 18 9

The next table sets forth the amount of the trade of each of the above-named colonies with the United Kingdom in 1893:—

Colony.	Imports from the United Kingdom.	Exports to the United Kingdom.	Total Trade with the United Kingdom.
	£	£	£
Queensland	1,559,475	3,694,534	5,254,009
New South Wales	7,218,124	8,269,507	15,487,631
Victoria	5,511,735	7,490,804	13,002,539
South Australia	1,925,985	3,477,579	5,403,564
Western Australia	733,001	349,080	1,082,081
Tasmania	344,360	284,334	628,694
New Zealand	4,481,955	7,036,515	11,518,470

The statement appended shows the relative importance of the Australasian Colonies as a market for the productions of the United Kingdom:—

EXPORTS OF HOME PRODUCTIONS FROM THE UNITED KINGDOM, IN 1893, TO—

	£
British India and Ceylon	29,675,740
United States	23,957,352
Germany	17,698,457
Australasia	15,083,490
France	13,365,444
Holland	9,248,678

The exports to other countries did not amount to £8,000,000 in any one case.

The Australasian Colonies as a whole, with a population of 4,000,000, thus take the fourth place in importance as consumers of British produce, the exports thereto being more than half the value of similar exports to British India, with its 290,000,000 inhabitants.

The staple products of these colonies must for some time to come be the work of the runholder, the farmer, and the miner. So long as there remain large areas of land capable of improvement and more lucrative occupation, as well as considerable mineral resources awaiting further development, no such increase in manufactures can be looked for as would enable colonial to supersede English goods in any material degree. The consumption per head may fall somewhat in the future, as the proportion of adults decreases owing to lessened immigration; but the relatively high rates of wages, and the absence of any widespread pauperism, should maintain a standard of living far above that existing in older countries. The rapid growth of population in Australasia may thus be expected largely to increase the demand for English products; indeed, there is every reason to believe that in the near future these colonies will become the most important market open to the English manufacturer.

POSTAL AND ELECTRIC TELEGRAPH.

There were 1,353 post-offices in New Zealand at the end of 1894. The correspondence delivered and posted in each of the four last years is shown hereunder:—

Correspondence, &c.	1891.	1892.	1893.	1894.
Letters delivered ..	23,867,402	25,079,938	26,340,704	27,344,369
Letters posted	23,745,462	25,530,804	25,744,745	25,823,967
Post-cards delivered ..	1,097,788	1,224,938	1,309,568	1,297,894
Post-cards posted ..	1,181,141	1,346,098	1,387,542	1,248,819
Books and packets delivered	3,342,781	6,508,463	7,611,279	6,682,936
Books and packets posted	3,827,980	6,774,924	6,548,789	6,900,049
Newspapers delivered ..	9,768,226	9,538,945	10,699,299	10,483,655
Newspapers posted ..	8,733,686	9,018,620	8,856,731	8,787,935

It will be noticed that in the above table the figures for 1892 show in two cases very large increase on the numbers for the previous year. These abnormally large increases were mainly due to the introduction in 1892 of the minimum rates of postage for printed matter.

The average number of letters, &c., posted per head of the population in each of the past five years was,—

	1890.	1891.	1892.	1893.	1894.
Letters	34·64	37·70	39·75	38·93	38·02
Post-cards	1·60	1·88	2·10	2·10	1·84
Books and parcels ..	5·35	6·08	10·55	10·13	10·39
Newspapers	14·00	13·87	14·04	13·39	12·94

The facilities afforded for the transmission of parcels through the Post Office to places within and without the colony have proved of much convenience to the public. The regulations admit of parcels up to 11lb. in weight being sent to almost all the important countries of the world.

The number and weight of parcels posted in 1890, 1893, and 1894 are given. The word "parcels" in the preceding table includes the parcels herein mentioned:—

Parcels.	1890.		1893.		1894.	
	No.	Weight.	No.	Weight.	No.	Weight.
		Lb.		Lb.		Lb.
Parcels posted ..	121,292	336,644	153,328	476,764	155,697	484,042

Owing to the greatly reduced book-post rates a large number of the lighter packets of the classes formerly sent by parcel-post continue to be diverted to the packet- and sample-post. This fact accounts for the small increase in the number of parcels.

The following table shows the number of parcels exchanged with the United Kingdom, the Australian Colonies, &c., in 1893 and 1894:—

Country.	Number of Parcels.			
	Received.		Despatched.	
	1893.	1894.	1893.	1894.
United Kingdom and foreign offices, *viâ* London	13,586	13,147	2,962	3,325
Victoria	2,722	2,560	1,209	1,246
New South Wales	575	2,225	399	1,075
Queensland	163	141	173	205
South Australia	219	215	142	170
Tasmania	184	144	274	279
Western Australia	29	52	75	95
Samoa	11	21	11	72
Tonga	2	..	7	12
Rarotonga	9	15	5	45
Ceylon	23	25	6	19
Straits Settlements	20	22	6	4
Totals	17,543	18,567	5,269	6,547

The declared value of the parcels received from places outside the colony was £27,601 14s. 1d., on which the Customs duty amounted to £5,340 7s. 4d.

The number of offices open for the transaction of money-order business at the end of 1894 was 354.

During 1894, 222,678 money-orders, for a total sum of £776,783 4s. 11d., were issued at the various post-offices in the colony. The money-orders from places beyond New Zealand that were paid in the colony numbered 19,983, for the amount of £72,358 0s. 7d.

Postal Notes.

The number of offices open for the sale of postal notes at the end of 1894 was 391. 310,360 postal notes were sold, value £112,003 2s. 6d. (including £2,166 3s. 6d. commission).

The notes paid numbered 308,377, value £109,300 16s. 6d.

The cost of the various mail-services between England and New Zealand was, in 1894, as follows:—

SAN FRANCISCO SERVICE.

	£	s.	d.
Payments—			
Subsidies, &c.	24,588	8	6
Interprovincial and other charges ..	3,727	13	10
	28,316	2	4
Receipts—			
Postages received from England and the Australian Colonies	9,998	18	9
Postages collected in the colony	10,353	8	4
	20,352	7	1
Loss to the colony	£7,963	15	3

PENINSULAR AND ORIENTAL AND ORIENT LINES SERVICES.

	£	s.	d.
Payments—			
To P. and O. and Orient Lines	2,780	13	5
Transit across Australia	117	0	3
" European Continent ..	507	13	10
Intercolonial services	1,781	16	1
	5,187	3	7
Receipts—			
Postages collected from England and from foreign offices	882	2	4
Postages collected in the colony	2,356	7	7
	3,238	9	11
Loss to the colony	£1,948	13	8

The total amount of postages collected and contributions received for all these services in 1894 was £23,590 17s.

The average number of days in 1894 within which the mails were delivered between London and each of the under-mentioned ports in New Zealand was as follows:—

London to—	San Francisco Service.	P. and O. Line.	Orient Line.
Auckland	33·00	40·58	42·54
Wellington	34·77	42·15	41·50
Dunedin	36·38	42·67	42·29
Bluff	37·13	41·92	41·54

There were 5,823 miles of telegraph-line open at the end of 1894, carrying 14,647 miles of wire. 2,046,839 telegrams were transmitted during the year; of these, the private and Press messages numbered 1,816,296, which, together with other telegraph receipts, yielded a revenue of £114,325 18s. 11d.

There were fourteen telephone exchanges and ten sub-exchanges on the 31st March, 1895. The number of connections increased from 4,244 in March, 1894, to 4,616 in March, 1895. The subscriptions to these exchanges during the year amounted to £21,552 12s. 10d.

The capital expended in connection with the several telephone exchanges up to the 31st December, 1894, was £116,845 10s. 4d.

FINANCE, ACCUMULATION, AND PRODUCTION.

General Government Finance.

For the year ended 31st March, 1895, the actual receipts from all sources of revenue (ordinary and territorial) amounted to £4,281,996. while the actual expenditure during the same period was £4,266,712. The excess of revenue over expenditure was therefore £15,284. Other receipts, including the balance brought forward at the beginning of the year, increase this excess to £430,042. Deducting from this £250,000 paid over to the Public Works Fund, and a small sum of £18 transferred to "Deposits," the net surplus on 31st March, 1895, is found to be £180,024.

Revenue and Expenditure.

The chief heads of revenue and expenditure are shown in the following table:—

Revenue.	£	£	*Expenditure.*	£	£
Customs duties	1,569,785		Permanent appropriations—		
Stamps	677,225		Civil List	24,412	
Land- and income-tax ...	370,060		Charges for Interest and Sinking Fund ...	1,716,889	
Property-tax	19		Under special Acts ...	189,891	
Beer duty	59,901		Payments to local bodies	145,810	
Railways	1,152,748		Annual appropriations for departmental services—		
Registration fees ...	51,381		Legislative	17,398	
Marine dues	21,514		Colonial Secretary ...	66,02	
Miscellaneous	63,176		Colonial Treasurer ...	24,512	
Territorial revenue ...	316,167		Minister of Justice ...	124,204	
		4,281,996	Postmaster-General ...	298,766	
			Commissioner of Trade and Customs ...	65,675	
			Commissioner of Stamps	20,168	
			Minister of Education	454,085	
			Minister of Mines ...	15,602	
			Minister of Agriculture	42,530	
			Working Railways ...	725,256	
			Public Buildings ...	50,156	
			Defence Department ...	62,156	
			Police Department ...	94,210	
			Department of Lands and Survey	119,764	
			Rates on Crown lands	320	
			Services not provided for	8,885	
					4,266,712
Other receipts—			Other expenditure—		
Proceeds debentures for Sinking Fund accretions	117,800		Paid to Public Works Fund	250,000	
Recovery from Cheviot Estate purchase ...	6,720		Unapplied released Sinking Funds transferred to Public Works	18	
Surplus on March 31, 1894	290,238				
		414,758			250,018
			Surplus on March 31, 1895	...	180,024
		£4,696,754			£4,696,754

Territorial revenue is made up of: Cash land sales, £75,363; deferred-payment land sales, £56,105; pastoral leases, rents, and miscellaneous, £184,699. The expenditure under special Acts of the Legislature includes, amongst other items, £20,821 contributed towards the maintenance of the Australian naval squadron; pensions, compensations, allowances, &c., £36,851; grants and contributions in aid of our universities, £7,000; subsidies to hospitals and charitable institutions, £74,483; and payments to members of both Houses of Parliament, £21,554.

The following is a summary of the revenue account for the year 1894–95; showing also the surpluses at the beginning and at the end of the year:—

	£	s.	d.	£	s.	d.	£	s.	d.
Surplus at 31st March, 1894							290,238	6	5
Actual receipts, 1894–95	4,281,995	15	11						
Actual expenditure, 1894–95	4,266,712	4	11						
				15,283	11	0			
Proceeds debentures for Sinking Fund accretions				117,800	0	0			
Recovery from Cheviot Estate Purchase				6,720	0	0			
							139,803	11	0
							430,041	17	5
Less—									
Amount applied in aid of Public Works Fund				250,000	0	0			
Unapplied released sinking funds transferred to Public Works Fund				17	11	8			
							250,017	11	8
Surplus at 31st March, 1895							£180,024	5	9

Besides expenditure out of revenue, there was also an expenditure out of the Public Works Fund of £360,787. Of this amount £200,545 was for construction of railways (including £1,000, purchase of Kaihu Valley Railway, but excluding £47,000, amount of the debentures taken over by Government on default of the railway company), £68,121 for roads, £54,190 for public buildings, £19,229 for telegraph extension, £8,680 for the Public Works Department, £5,865 for the development of goldfields, £3,146 for lighthouses and harbour-works, £561 for rates on Native lands, £349 for purchase of Native lands, and £101 for immigration.

In addition to the above, £89,207 were spent on roads and bridges under "The Lands Improvement and Native Lands Acquisition Act, 1894"; under the same Act, and "The Native Land Purchases Act, 1892," £101,009 were expended in buying Native lands; while a further sum of £27,715 was paid in acquiring estates under provisions of the Land for Settlements Acts; and £21,939 were disbursed for surveys, roads, &c., on the Cheviot Estate.

Besides the revenue raised by the General Government, all the County and Borough Councils, Town, Road, River, Harbour, and Drainage Boards have power to levy rates and obtain revenue from other sources.

The colony is divided into 94 boroughs and 81 counties; within the latter there are 247 road districts and 40 town districts, not including the special town district of Rotorua, constituted under "The Thermal-Springs Districts Act, 1881."

The following table shows the receipts from rates and other sources, with the expenditure and outstanding loans, of the local governing bodies for six financial years:—

Year.	Receipts of Local Bodies.		Expenditure.	Outstanding Loans.
	From Rates.	From Government and other Sources, including Loans.		
	£	£	£	£
1887-88	433,831	1,306,661	1,819,787	5,812,803
1888-89	445,928	992,567	1,560,604	5,892,050
1889-90	460,302	914,413	1,476,539	5,978,059
1890-91	463,581	899,666	1,381,319	6,042,693
1891-92	488,824	907,420	1,400,467	6,081,934
1892-93	508,157	1,050,214	1,482,548	6,203,869
1893-94	551,412	1,304,869	1,589,124	6,614,824*

Full particulars relating to local finance will be found under the head "Local Governing Bodies."

Taxation.

The direct taxation prior to 1892 consisted of a property-tax of 1d. in the pound on all assessed real and personal property (with an exemption of £500) and the stamp duties; but in 1891 a Land and Income Assessment Act was passed repealing the property-tax. A full description of the system of the land- and income-tax is given by the Commissioner in a special article in Part III. of this book, and to this attention is particularly directed. The leading features only are briefly stated here.

The Assessment Act of 1891 provides for an ordinary land-tax on the actual value of land, and an owner is allowed to deduct any amount owing by him secured on a registered mortgage. Under the original Act the deduction for improvements might not exceed £3,000; but, by the Amendment Act of 1893, the value of all improvements whatsoever is exempted from liability to land-tax. Besides this, an exemption of £500 is allowed when the balance, after making deductions as above stated, does not exceed £1,500; and above that a smaller exemption is granted, but ceases when the balance amounts to £2,500. Mortgages are subject to the land-tax. The revenue from the ordinary land-tax is, in round numbers, about £200,000 per annum. The rate of ordinary land-tax for 1894-95 was 1d. in the pound.

In addition to the ordinary land-tax, there is a graduated land-tax which commences when the unimproved value is £5,000. For the graduated land-tax, the present value of all improvements is deducted; but mortgages are not deducted. The Act of 1893, while reducing the ordinary taxation on land by exempting all improvements, increased the graduated-tax, and the revised rates are now one-eighth of a penny in the pound sterling when the value is £5,000 and is less than £10,000, from which the rate increases with the value of the property by further steps of an eighth of a penny until the maximum of 2d. in the pound is reached, payable when the value is £210,000, or exceeds that sum.

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* Not including loans amounting to £550,364, repayable to General Government by annual instalments.

This graduated tax yields, in round numbers, £80,000 per annum, which is not included in the sum of £200,000 given above. Twenty per cent. additional tax is levied in case of persons who have been absent from the colony for three years or more prior to the passing of the yearly taxing Act. This amounts to about £1,000, and is included in the £80,000 shown above.

Income-tax is levied on all incomes above £300, and from taxable incomes a deduction of £300 is made. The rate of income-tax for 1894–95 was 6d. in the pound on the first taxable £1,000, and 1s. in the pound on taxable incomes over £1,000.

Companies pay 1s. in the pound, and are not allowed the £300 exemption. The Act of 1893 further disallowed the £300 exemption in the case of persons not domiciled in New Zealand.

The indirect taxation is made up of Customs duties, and excise duty on beer made in the colony. The following statement shows the amount raised by taxation in each of the past thirteen years:—

	Amount of Revenue raised by Taxation.	Amount per Head of Population (excluding Maoris).		
	£	£	s.	d.
1882	1,956,557	3	16	10
1883	1,957,080	3	13	11
1884	1,815,674	3	5	9
1885	2,016,730	3	10	10
1886	1,882,050	3	4	8
1887	1,876,235	3	2	11
1888	2,031,658	3	7	1
1889	2,090,405	3	8	4
1890	2,173,985	3	10	0
1891	2,179,739	3	9	2
1892	2,339,511	3	12	10
1893	2,353,250	3	11	2
1894	2,300,350	3	7	9

As the Maoris contribute somewhat to the Customs revenue, an allowance should be made on that account to ascertain more correctly the amount of taxation per head of the rest of the people. By including Maoris the Customs and excise duties per head of the rest of the population would be reduced by 2s. 10d. for the year 1894. If this amount be deducted from the taxation per head given for that year, the rate would be reduced from £3 7s. 9d. to £3 4s. 11d. This latter rate may fairly be used for comparison with the rates in the neighbouring colonies.

The following were the rates of taxation per head in the Australasian Colonies in 1893, specifying the proportions derived from Customs and other taxes:—

Colonies.	Rate of Taxation per Head of Mean Population.			Proportion of Taxation from Customs Duties.	Ratio of Taxation by Customs to Value of Imports.
	Customs.	Other Taxes.	Total.		
	£ s. d.	£ s. d.	£ s. d.	Per Cent.	Per Cent.
Queensland ..	2 9 10	0 12 9	3 2 7	79·61	24·43
New South Wales	1 15 2	0 11 8	2 6 10	75·06	11·75
Victoria ..	1 9 9	0 13 4	2 3 1	68·94	13·09
South Australia	1 10 3	0 13 4	2 3 7	69·39	6·41
Western Australia	4 3 0	0 10 10	4 13 10	88·46	17·36
Tasmania ..	1 17 2	0 14 10	2 12 0	71·42	26·99
New Zealand ..	2 10 9	1 0 5	3 11 2	71·34	24·29

The various local bodies levied taxation during the year ended 31st March, 1894, to the amount of £646,560, or 19s. 5d. per head of European population. Of the total sum, £362,591 were raised by general rates, £188,821 by special and separate rates, £80,106 by licenses, and £15,042 by other taxes.

Loans for Government Advances to Settlers.

A notable feature in the legislation of the year 1894 was the passing of the Government Advances to Settlers Act, of which a description will be found in the next part of this volume. The Act authorised the raising of three millions sterling, in sums not exceeding a million and a half in each financial year, within two years from the date of the passing of the Act. The Loan Agents in London accordingly called for tenders for a million and a half of 3-per-cent. inscribed stock, to be lodged at the Bank of England on or before the 3rd May, 1895. The average price realised was £94 8s. 9d., applications having been made for £5,960,400, at prices varying from £100 to £90, of which about 33 per cent. of the tenders at £94 8s. were accepted, those above that price being allotted in full. The total cash receivable was £1,416,601 2s.

New Zealand Consols.

Another important financial Act, termed the New Zealand Consols Act, was also passed in 1894, with the intention of providing further means of investment for the savings of persons resident in the colony. This subject is fully dealt with in Part III.

Public Debt.

The gross public debt of the colony on 31st March, 1895, was £40,386,964, an increase of £560,549 on the amount at the close of the preceding year. Of this increase, the large sum of £411,100 was made up of debentures issued for the purpose of giving immediate returns: viz., £152,000 for loans to local bodies; £234,000 for land improvement, purchase of Native lands; and £25,100 for purchase of land for settlements.

The total issue of bonds and inscribed stock during the year was

£1,522,363. On the other hand, debentures amounting in all to £961,814 were redeemed or converted, leaving, as stated above, an increase to the gross public debt of £560,549.

Details of the increase in the public debt are shown hereunder:—

	£	£		£	£
Gross debt, 31st March, 1894		39,826,415	Debentures redeemed—		
Debentures issued for—			Consolidated Stock Act, 1884	264,414	
Loans to local bodies ...	152,000		Lyttelton and Christchurch Railway Loan Ordinance, 1860 ...	15,200	
Land improvement and purchase of Native lands	234,000				

The figures given in the last column of the table on page 151 are the annual charges on the amount of stock and debentures of the public debt (exclusive of Treasury bills) outstanding at the end of each year, and not the moneys actually paid for interest and sinking fund. The actual payments during each year are shown hereunder:—

Year ended 31st March.	Interest and Sinking Funds, Amounts actually paid for.				
	Public Debt.			Treasury Bills.	Total.
	Interest.	Sinking Funds.	Total.	Interest.	
	£	£	£	£	£
1890 ..	1,752,020	115,781	1,867,801	29,801	1,897,602
1891 ..	1,718,618	112,540	1,831,158	27,094	1,858,252
1892 ..	1,747,376	107,469	1,854,845	38,084	1,892,929
1893 ..	1,662,029	117,535	1,779,564	41,564	1,821,128
1894 ..	1,711,583	123,703	1,835,286	50,410	1,885,696
1895 ..	1,619,925	57,979	1,677,904	38,985	1,716,889

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31st March.	and Stock in Circulation.	per Head of European Population.	Fund accrued.	debtedness.	per Head of European Population.	Sinking Fund).
	£	£ s. d.	£	£	£ s. d.	£
1890..	38,667,950	62 10 1	1,386,185	37,281,765	60 5 3	1,851,421
1891..	38,830,350	61 19 4	1,486,427	37,343,923	59 11 11	1,864,575
1892..	38,713,068	60 14 8	1,037,862	37,675,206	59 2 0	1,842,686
1893..	39,257,840	59 16 7	1,113,770	38,144,070	58 2 7	1,837,169
1894..	39,826,415	58 17 0	951,924	38,874,491	57 8 10	1,873,682
1895..	40,386,964	58 11 6	751,932	39,635,032	57 9 9	1,656,970

Since the 31st March, 1891, the increase in the gross public debt amounts to £1,556,614; but of this sum no less than £1,335,591 earns a higher rate of interest than the Treasury has to pay. £1,177,566 is earning something like 5 per cent., while an average rate of £4 8s. 2d. is paid for the use of the money, and £158,025 is earning 4 per cent., while the deposits carry only 3½ per cent. interest.

The debt of the colony as above stated does not include the unpaid loans raised by the several local bodies, amounting at the end of March, 1894, to £6,614,824, of which sum £5,416,050 were raised outside the colony. These will be referred to in dealing with the finance of local bodies.

Of the existing loans some portions were raised by the several Provincial Governments, while others represent loans raised for the purpose of paying off provincial liabilities. It is now almost impossible to ascertain the exact expenditure by these Governments on public works, or the allocation of the proceeds of the loans raised by them.

The following shows the debt of each of the Australasian Colonies on the 31st December, 1893:—

Colony.	Amount of Debt.	Accrued Sinking Fund.	Net Indebtedness.	Rate of Net Indebtedness per Head of Population at End of Year.		
	£	£	£	£	s.	d.
Queensland	30,639,534	..	30,639,534	70	17	6
New South Wales* ..	58,079,033	..	58,079,033	47	9	6
Victoria†	46,033,227	63,238	45,969,989	39	3	2
South Australia ..	21,697,000	13,750	21,683,250	62	10	2
Western Australia ..	2,873,098	129,099	2,743,999	42	3	6
Tasmania	7,645,604	136,591	7,509,013	48	12	6
New Zealand ..	39,729,376	828,046	38,901,330	57	17	4

The amount of net indebtedness per head of population was thus greater in Queensland and South Australia than in New Zealand.

The burden of a public debt depends greatly on the measure in which it is expended on reproductive works, and on the degree of prosperity enjoyed by the people. The generally rugged character of this country, and the natural difficulties appertaining to the sites of many of the towns, soon necessitated a large outlay on roads and public works. The need was fully recognised, and to some extent met, by the Provincial Governments, which have justly received great credit for their far-seeing and liberal exertions. A great deal of road-making, often of a very costly character, was accomplished, harbour and other improvements begun, and immigration encouraged. Some railways were made in Canterbury, Otago, and Southland. The City of Christchurch and the Canterbury Plains were connected with the Port of Lyttelton by a railway, which required the construction of a long and very costly tunnel through the intervening range of hills. In Otago, private enterprise, backed by the guarantee of the Provincial Government, built a railway from Dunedin to Port Chalmers, and some miles of line were made in Southland, from the town of Invercargill into the interior; but no general and comprehensive scheme of public works could be carried out by the separate exertions of the Provincial Governments. In 1870, therefore, the General Government brought forward its public-works and immigration policy, by which it was proposed to raise a loan of ten millions for the construction of main trunk railways, roads, and other public works of importance to the colony as a whole, as well as for the promotion of immigration on a large scale, the expenditure to be spread over a period of ten years. This policy was accepted by the Legislature, and embodied in "The Immigration and Public Works Act, 1870."

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* On 1st January, 1894.

† Excluding £750,000 Treasury Bills in aid of revenue, and £2,419,900 available for redemption of loans about to fall due.

The demands for local railways and other works soon caused the original proposals to be exceeded, and entailed an expenditure at a much more rapid rate and to a far greater amount than was originally contemplated. Although many of the works undertaken have been directly unremunerative, yet the effect of the policy, as a whole, has been largely to develop the settlement of the country, and enormously to increase the value of landed property; land, in parts which before the construction of railways was valued at from £1 to £2 per acre, having been subsequently sold at prices varying from £10 to £20 per acre. Moreover, the railway and telegraph-lines yield a revenue which covers a large portion of the interest on their cost after paying working-expenses.

The following may be stated as approximately representing the loan expenditure by the General Government on certain public works to the 31st March, 1895:—

	£
Telegraphs	699,022
Waterworks on goldfields	578,306
Immigration	2,146,654
Roads and bridges	3,916,526[*]
Land-purchases	1,297,854[†]
Lighthouses, harbours, and defence works ..	910,103
Public buildings, including schools	1,944,900
Coal-mines and thermal springs	25,435
Railways (by the Provincial and General Governments)	15,925,889[‡]

The above several items of expenditure give a total of £27,444,689. To this must be added so much of the loans raised by the various local bodies as has been devoted to the construction of harbours, roads, and other public works, together with the amounts expended out of loan by the Provincial Governments on immigration, and public works other than railways. The expenditure on directly reproductive works—railways, telegraphs, and waterworks—has been £17,203,217. Expenditure on land is also partly reproductive, and that on immigration, roads, bridges, and lighthouses indirectly so.

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[*] Not including £116,918 spent under Government Loans to Local Bodies Act Amendment Act, 1891, and £121,800 under Lands Improvement, &c., Act, 1894.

[†] Not including moneys spent in purchase of Cheviot Estate, £250,000, under Native Land Purchase Acts, £208,900, and under Land for Settlements Act, £64,066.

[‡] Including £1,104,281 spent on railways by Provincial Governments, of which sum £82,259 was paid for the Dunedin and Port Chalmers line.

Private Wealth.

The number and value of estates of deceased persons finally certified on which duty was paid during the years 1893 and 1894 are shown classified according to amount:—

Value of Estates.	1893.		1894.	
	Number of Estates.	Aggregate Value on which Duty was Paid.	Number of Estates.	Aggregate Value on which Duty was Paid.
£ £		£		£
100 to 500	255	67,036	310	78,551
500 „ 1,000	108	74,900	123	89,564
1,000 „ 2,000	66	93,592	78	108,413
2,000 „ 3,000	39	96,301	25	60,403
3,000 „ 4,000	14	48,016	15	53,044
4,000 „ 5,000	8	34,857	15	66,367
5,000 „ 7,500	15	94,839	13	76,803
7,500 „ 10,000	11	97,288	8	68,747
10,000 „ 15,000	14	167,355	5	60,799
15,000 „ 20,000	9	155,810	7	115,636
20,000 and over	5	601,786	10	442,138
Totals	544	1,531,780	609	1,220,465

On these data it is possible to compute roughly the total value of private property in the colony. Dividing the aggregate amount admitted to probate during a series of years by the number of *deaths* occurring within the same period, the average value of property left by each person dying is obtained. On the assumption that the average wealth of each person living is equal to that left by each person dying, the total aggregate private wealth may readily be found by multiplying the average amount left at death by the number of persons living. It is necessary for this calculation to take the average results for a series of years, as any inference drawn from the figures of a single year would be untrustworthy. For an increase in the death-rate must necessarily give a corresponding decrease in the estimated wealth, unless the number of estates admitted to probate maintains year by year the same ratio to the number of deaths. An epidemic among young children who have no property to leave would unduly lower the average; while, on the other hand, the deaths of a few wealthy persons would raise it unwarrantably. It must also be remembered, when using these figures for comparative purposes, that the lowness of the death-rate in New Zealand is in great measure due to the small mortality among infants. By putting the figures for several years together, and taking the average for the term, we may arrive at fairly correct results, as thus:—

Years, inclusive.	Amount sworn to.	Total Number of Deaths.	Average Amount left by each Person.	Average Number of Persons living.	Average Total Wealth for each Year of the Period.
	£		£ s. d.		£
1890–94	7,363,639	32,656	225 9 10	646,670	145,818,383

It is manifest, however, that this average does not exhibit with sufficient accuracy the actual *present* amount of wealth. If the average amount per head were the same at the end of the year 1894 as for the period 1890–94—viz., £225 9s. 10d.—then the total wealth possessed by the 686,128 persons in the colony on the 31st December of that year would be £154,715,821.

These figures, however, fall short of the full amount of private wealth, as the values sworn to do not include those estates on which no stamp duty is payable—viz., land and goods passing to the husband or wife of the deceased, and properties under £100. The total of these must be considerable, and should give a substantial increase to the average amount per head, and therefore to the total wealth.

The estimated private wealth for each year since 1888 is shown by the following figures:—

Year.	Amount.	Average per Head.
	£	£
1888	131,345,925	216
1889	133,135,134	215
1890	142,631,461	228
1891	145,780,502	230
1892	152,065,087	236
1893	156,058,273	232
1894	154,715,821	225

By another and more direct method of estimating private wealth the Government Statistician of New South Wales arrived at a value for New Zealand for the year 1890 of £150,192,000; and for the year 1892 a calculation on similar lines but somewhat differing in detail was made in the Registrar-General's Office here, the results of which approximated closely to the sum arrived at by using the probate returns. The figures are admittedly open to many objections, as is always the case in such calculations. It may be that some items were assessed above and others below their real value. If the probate method be trustworthy, then the total given by the direct method is probably short of the truth.

1. *Land, Buildings, and Improvements privately owned.*—The value of privately-owned land with improvements was estimated to be £96,066,000. In the year 1888 the sum was £84,208,230, and

in 1891 it had increased to £92,371,166, or at the rate of about 3 per cent. per annum. By allowing a somewhat higher rate of increase for 1892, which was considered allowable, the above estimate was arrived at.

2. *Live-stock.*—For purposes of the calculation, horses were valued at £9 10s., cattle at £4 10s., sheep at 10s., and pigs at £1 5s. The total value of all kinds of stock came to £15,299,189.

3. *Shipping.*—The value of steamers was taken at £20 per ton, and sailing-vessels at £8. The total value of the shipping at these rates was £1,591,672.

4. *Railways (not Government).*—The cost of the two private lines in the colony was returned at £1,613,000.

5. *Produce and Merchandise.*—The value of goods and manufactures, with that of the produce on hand, was reckoned at £14,408,015.

6. *Furniture and Household Goods.*—The furniture was valued by allotting a certain sum to every house, according to the number of rooms, using for this purpose the number of houses of each class as returned at the last census. For clothing and other effects an average of £4 per head was accepted. The estimated value was £8,937,678.

7. *The Machinery and Plant* belonging to the larger industries were valued in the census returns at £3,051,700; adding to this £1,500,000 for machinery in smaller works, and £650,000 for agricultural implements, the total was found to be £5,201,700.

8. *Coin and Bullion.*—The coin and bullion in the banks, together with an allowance of £3 10s. per head of population (the estimate of the coin in actual use) were taken to represent the amount for the colony. The sum was £4,799,340.

9. *Mines and Sundries.*—There is included in the total of £7,000,000 set down under this head the estimated value of the interest of companies and persons in coal- and gold-mines on Crown lands (the value of such mines on freehold lands being included in item No. 1), also sundry small sums not accounted for elsewhere. This estimate was not closely calculated.

A summary of the above gives the total of private property as under:—

PRIVATE PROPERTY, 1892.	£
1. Land, buildings, and improvements	96,066,000
2. Live-stock	15,299,000
3. Shipping	1,592,000
4. Railways (not Government)	1,613,000
5. Produce and merchandise	14,408,000
6. Furniture and household goods	8,938,000
7. Machinery and plant	5,202,000
8. Coin and bullion	4,799,000
9. Mines and sundries	7,000,000
Total	£154,917,000

The Government Statistician of New South Wales estimated the private wealth of the seven colonies of Australasia for the year 1890 at £1,169,434,000.

It is interesting to compare this estimate of the wealth of the Australasian Colonies with the results of similar calculations for other parts of the world. A table giving this information for various countries has accordingly been introduced; but, in comparing the wealth of one country with another, it must be remembered that the purchasing-power of money in different parts of the world varies considerably, and without information on this head bare statements of wealth per inhabitant are of very little use, and often misleading. Besides this, the question as to what extent Government undertakes such functions as the construction and working of railways disturbs comparisons of private wealth. The figures are for the most part taken from Mulhall's "Dictionary of Statistics":—

WEALTH OF PRINCIPAL COUNTRIES.

Country.	Private Wealth.	Average Amount per Head of Population.
	£	£
United Kingdom	9,400,000,000	247
France	8,598,000,000	222
Germany	6,437,000,000	133
Russia	5,089,000,000	55
Austria-Hungary	3,855,000,000	96
Italy	2,963,000,000	98
Spain	2,516,000,000	143
Portugal	408,000,000	83
Sweden and Norway	880,000,000	122
Denmark	404,000,000	192
Holland	980,000,000	213
Belgium	1,007,000,000	165
Switzerland	494,000,000	165
United States	12,824,000,000	205
Canada	980,000,000	196

In the year 1885 the property-tax returns gave £40,304,000 as the value of public property in the colony, including Crown lands, educational, municipal, and other reserves, with public works—namely, railways, telegraphs, lighthouses, buildings, harbour-works, and water-supply on goldfields. In 1888 the value of the above had risen to £42,505,000, and it is supposed that in 1893 the sum would probably be about £45,000,000. There are also from nine to ten millions of acres of lands the property of the Maoris. In 1888 the Native lands were valued at £3,000,000 sterling. The present value is probably not so much; some land has been sold, but, on the other hand, some of that retained may have increased in value.

Incomes.

The incomes of the people of New Zealand for 1893 have been the subject of two calculations made on different principles, but yielding similar results.

The first method adopted was to allot a probable income to each description of occupation found in the census of 1891 (the census figures being raised to the population of 1893). Whatever may be thought of the plan of basing a calculation on a series of hypotheses it was adopted by the late Mr. Hayter, and no doubt serves as a sort of check on Mr. Mulhall's method.

The result for New Zealand shows an aggregate of between £27,000,000 and £28,000,000,* giving an average income of about £41 per head of population of all ages and both sexes, and £91 per head of breadwinners.

Mr. Mulhall's method may be thus described: Take 90 per cent. of agricultural, pastoral, and mining produce, and 60 per cent. of manufactures; compute transport at 10 per cent. on the gross value of the foregoing products; house-rent according to the nearest estimate; commerce at 10 per cent. on the imports and exports; shipping, 30s. per ton; banking, 5 per cent. on banking power; and allow 10 per cent. on the total of the preceding items to cover the earnings of servants, professional men, Civil Service, &c. The method is said to be one answering fairly well for comparative purposes.

The earnings of the people of New Zealand, calculated in this way, would be:—

Heads of Income.	Amount.
	£
From agricultural, pastoral, and mining produce ..	12,915,000
„ manufactures	3,181,000
„ transport	1,965,000
„ house-rent	4,500,000
„ commerce and shipping	1,700,000
„ banking	991,000
„ earnings of professional men, Civil Service, servants, &c.	2,525,000
	£27,777,000*

The average earnings per inhabitant in other countries have been calculated on the above method, by Mr. Mulhall, with the following results:—

Country.	Average per Inhabitant.			Country.	Average per Inhabitant.		
	£	s.	d.		£	s.	d.
United Kingdom ..	33	7	0	Norway	20	5	0
France	27	8	0	Denmark	32	5	0
Germany	22	2	0	Holland	22	6	0
Russia	11	5	0	Belgium	28	0	0
Austria	15	5	0	Switzerland ..	19	0	0
Italy	12	2	0	United States ..	39	0	0
Spain	16	5	0	Canada	26	0	0
Portugal	12	1	0	Australia	40	2	0
Sweden	22	0	0	Argentina	24	0	0

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* This sum being the total of *all* the incomes in the colony, much money is necessarily included several times over.

Wages.

Dealing only with persons returned as in receipt of wages or salary, and discarding all who derive their incomes from professional or trade profits, it has been roughly estimated that the aggregate of the wages paid in the colony for the year 1893 was £12,998,546, of which sum £11,983,521 was earned by males, and £1,015,025 by females, the average yearly earnings amounting to £92 12s. for the one sex, and £33 18s. for the other:—

Occupations. (For details of Classes see report on Census, 1891.)	Males.			Females.		
	Estimated Number of Wage-earners, 1893.	Average Annual Earnings	Aggregate Earnings, 1893.	Estimated Number of Wage-earners, 1893.	Average Annual Earnings	Aggregate Earnings, 1893.
		£	£		£	£
I. Professional	7,472	141·5	1,057,452	4,046	49·7	200,945
II. Domestic ..	3,536	84·1	297,394	16,718	32·1	536,641
III. Commercial	29,444	121·9	3,590,876	1,179	23·8	28,016
IV. Industrial..	48,556	80·0	3,886,058	7,751	31·7	245,535
V. Agricultural, pastoral, mineral, &c.	39,470	77·7	3,068,948	121	17·6	2,126
VI. Indefinite ..	961	86·2	82,793	114	15·5	1,762
Totals..	129,439	92·6	11,983,521	29,929	33·9	1,015,025

Total wages, males	£11,983,521
" females	1,015,025
Total	£12,998,546*

Cost of Living.

An estimate made last year of the cost of living in New Zealand showed a total expenditure of £23,349,623. This sum included, besides what was spent on necessaries—food, drink, clothing, fuel, light, rent, and furniture—the additional outlay on luxuries, *e.g.*, books, pictures, amusements, &c., and on things of occasional necessity, such as stimulants, medical comforts, personal attendance, and the like. The rate arrived at per head of population was £35 6s. 1d.

Mr. Mulhall, in his "Dictionary of Statistics," gives the average expenditure per head of population for various countries as follows:—

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* Here again the total, being the sum of all wages paid in the colony, must be understood as a gross amount, including much money counted several times over.

Country.	Average Expenditure per Head. £	s.	d.	Country.	Average Expenditure per Head. £	s.	d.
United Kingdom	29	14	9	Norway	19	0	0
France	23	19	4	Denmark	28	11	5
Germany	20	3	4	Holland	20	17	4
Russia	10	1	11	Belgium	25	8	2
Austria	14	4	9	Switzerland	18	0	0
Italy	11	11	0	United States	32	16	2
Spain	15	12	6	Canada	23	6	2
Portugal	11	5	6	Australia	33	10	3
Sweden	20	8	4	Argentina	27	9	1

Mr. Coghlan's estimate for Australasia is as high as £42 1s. 3d. per head.

Below are shown the quantities used per head of population in New Zealand of some of the main articles of consumption. The figures are averages for five years :—

Average Consumption.

Articles.		Per Inhabitant.
Food, Drinks, and Stimulants.		
Wheat	bush.	6·71
Potatoes	lb.	470·00
Beef	lb.	107·20
Mutton	lb.	126·00
Butter	lb.	17·10
Cheese	lb.	4·40
Milk	gal.	22·50
Cocoa and chocolate	lb.	0·43
Coffee and chicory	lb.	0·46
Tea	lb.	5·88
Sugar	lb.	81·76
Rice	lb.	8·39
Fruits, dried (imported)	lb.	6·72
Fruits, fresh (imported)	lb.	22·06
Mustard	lb.	0·28
Pickles	doz. pts.	0·02
Sauces	doz. pts.	0·02
Spices and pepper	lb.	0·53
Salt	lb.	33·98
Vinegar	gal.	0·12
Tobacco, snuff, cigars	lb.	1·99
Spirits	gal.	0·69
Wine	gal.	0·16
Beer	gal.	7·69
Other Articles.		
Kerosene	gal.	2·19
Soap, imported	lb.	0·55
Soap, New Zealand	lb.	14·58
Candles, imported	lb.	2·54
Candles, New Zealand	lb.	2·66
Matches	gross	0·17
Soda, carbonate	lb.	0·19
Soda, crystals	lb.	0·73
Coal	tons	1·11

Prices and Wages.

The average prices of produce, live-stock, provisions, &c., in each provincial district are given for the year 1894 in tabular form on pages 162 and 163. While the variations for the different districts are such as to render it in most cases inadvisable to show averages for the colony, this has nevertheless been done for the staples of food, *i.e.*, bread, meat, and milk, also for tea and sugar, which may almost be called necessaries. Averages for the colony, taken out for the years 1864, 1874, 1884, and 1894, indicate a decline in prices with the advance of time. In striking these, prices on the goldfields have not been taken into account:—

—		1864.	1874.	1884.	1894.
		s d.	s. d.	s. d.	s. d.
Bread	per lb.	0 3½	0 2	0 1¾	0 1½
Beef	per b..	0 8¼	0 5	0 5	0 4¼
Mutton	per lb.	0 8¼	0 4	0 3½	0 3¼
Sugar	per lb.	0 6	0 5	0 4½	0 3
Tea	per lb.	3 0¾	2 9½	2 7½	2 2
Butter (fresh) ..	per lb.	1 11½	1 3	0 11	0 9¾
Cheese (colonial) ..	per lb.	1 4	0 9¾	0 9	0 6
Milk	per quart.	0 6¾	0 5	0 4¼	0 3½

Rates of Wages.

The average rates of wages paid in 1894 in each provincial district for agricultural, pastoral, artisan, and servants' labour are given on pages 164 to 166.

An average for the colony, calculated for the years 1874, 1884, and 1894 would seem to show that wages for general labour and artisan's work have somewhat fallen during the period specified. But the average for artisans is hard to calculate, because rates vary for different kinds of skilled work, in which the number of persons employed vary also; or, otherwise expressed: (*a*) different trades command different rates; (*b*) all persons employed in the same trade do not receive the same wage; and (*c*) the number employed in one trade differs from the number employed in another.

—		1874.	1884.	1894.
		s. d.	s. d.	s. d.
General labourers ..	per day	7 0	7 0	6 6
Artisans—				
Bricklayers.. ..	〃	11 6	11 3	9 6
Carpenters	〃	10 9	9 6	8 3
Masons	〃	12 0	11 3	9 6
Painters	〃	No information	9 6	8 3
Plumbers	〃	〃	10 9	8 6
Smiths	〃	10 9	10 0	8 6

AVERAGE PRICES OF PRODUCE, LIVE-STOCK, PROVISIONS, ETC., IN EACH PROVINCIAL DISTRICT OF NEW ZEALAND DURING THE YEAR 1894.

Produce, &c.		Auckland.	Taranaki.	Hawke's Bay.	Wellington.	Marlborough.	Nelson.	Westland (Goldfield).	Canterbury.	Otago (Part Goldfield).
I. AGRICULTURAL PRODUCE.										
Wheat ..	.. per bushel (60lb.)	2/9	3/3 to 3/6	3/	2/9 to 4/2	3/	3/3	3/3	2/6	2/9 to 3/
Barley ..	.. per bushel (50lb.)	3/	3/3	3/3	2/6 to 3/6	3/6	3/9	3/	3/6	3/ to 3/6
Oats ..	.. per bushel (40lb.)	2/	2/6	2/6	2/ to 2/6	2/	2/	2/6	1/6	1/5 to 2/
Maize ..	.. per bushel (56lb.)	2/3	3/3 to 3/6	3/	3/ to 3/6	4/	3/9	4/	3/3	3/
Bran ..	.. per bushel (20lb.)	9d.	1/ to 2/	1/3	8d. to 1/3	9d.	9d.	1/	6d.	6d. to 1/3
Hay ..	.. per ton ..	£4	£2 5/–£3 10	£3 10/	£3 to £5	£3	£3 15/	£4 10/	£2 5/	£2 10/ to £3
II. FLOUR AND BREAD.										
Flour, wholesale	.. per ton of 2,000lb.	£8	£7 15/	£8 10/	£7 10/ to £8	£8 10/	£7 15/	£8	£7	£7 10/–£8
Flour, retail	.. per bag of 50lb...	5/	4/9 to 8/	6/	4/6 to 5/	5/	5/	5/6	4/3	4/ to 6/6
Bread ..	.. per 4lb. loaf ..	5d.	6d. to 7d.	7d.	5d. to 6d.	6d.	6d.	6d.	4d.	4d. to 6d.
III. LIVE-STOCK AND MEAT.										
Horses, draught	.. per head ..	£15 to £40	£15 10–£23	£25	£10 to £20	£16 to £30	£25	£25	£14	£15 to £25
Horses, saddle and harness	.. per head ..	£10 to £30	£9 to £10	£10	£3 to £12	£8 to £20	£15	£15	£10	£7 to £15
Cattle, fat	.. per head ..	£7	£6 to £6 5/	£7	£4 to £8	£7	£6 10/	£9	£7	£7 to £8 10/
Cattle, milch cows	.. per head ..	£6	£5 10-£6 10	£8	£4 to £6 10/	£7	£5 10/	£7	£6	£5 to £7
Sheep, fat..	.. per head ..	11/	10/ to 13/	9/	5/ to 11/	10/	10/	17/	13/	10/ to 12/
Lambs, fat	.. per head ..	8/	8/ to 10/	6/	4/ to 7/6	7/	9/	15/	11/	7/6 to 10/
Butchers' meat:										
Beef ..	.. per lb.	6d.	3d. to 4d.	5d.	3½d. to 6d.	3d. to 5d.	4d.	5d.	3d.	3d. to 6d.
Mutton ..	.. per lb.	4½d.	3d. to 4½d.	4d.	3d. to 4d.	2d. to 6d.	4d.	5d.	2½d.	2d. to 6d.
Veal ..	.. per lb... ..	6d.	4d. to 4½d.	4d.	4d. to 6d.	4d. to 6d.	5d.	6d.	3d.	2d. to 5d.
Pork ..	.. per lb.	5d.	4½d. to 6d.	5d.	5d. to 8d.	4d. to 6d.	5d.	6d.	4½d.	6d.
Lamb ..	.. per lb.	5d.	3½d. to 6d.	5d.	4½d. to 6d.	3d. to 6d.	5d.	6d.	8d.	3d. to 8d.
IV. DAIRY PRODUCE.										
Butter, fresh	.. per lb.	9d.	8d. to 9d.	1/	9d. to 1/	8d. to 1/	10d.	1/	10d.	9d. to 1/
Butter, salt	.. per lb.	6d.	8d.	10d.	6d. to 10d.	7d.	8d.	1/	6d.	7½d. to 10d.
Cheese, colonial	.. per lb.	5d.	6d.	7d.	6d. to 8d.	5d.	7d.	7d.	5d.	4d. to 8d.
Cheese, imported	.. per lb.	1/	..	9d.	9d. to 1/	6d.	1/	1/6	1/	..
Milk ..	.. per quart ..	3d.	3d.	4d.	3d. to 4d.	3d.	4d.	6d.	3d.	2d. to 4d.

AVERAGE PRICES OF PRODUCE, LIVE-STOCK, PROVISIONS, ETC., IN EACH PROVINCIAL DISTRICT OF NEW ZEALAND DURING THE YEAR 1894—*continued.*

Produce, &c.		Auckland.	Taranaki.	Hawke's Bay.	Wellington.	Marlborough.	Nelson.	Westland (Goldfield).	Canterbury.	Otago (Part Goldfield).
V. FARM-YARD PRODUCE.										
Geese	per pair	5/	6/ to 6/6	10/	5/ to 7/6	4/6	5/	7/6	8/6	6/ to 10/
Ducks	per pair	4/	4/6 to 5/	5/	3/6 to 4/	3/6	3/	5/	5/	5/ to 6/
Fowls	per pair	3/6	2/6 to 3/6	3/	3/ to 4/	2/6	2/6	3/	4/	2/6 to 4/
Turkeys	per head	4/ to 7/6	5/ to 7/6	6/	3/ to 9/	6/	3/6	7/	8/ to 12/	7/6 to 10/
Bacon	per lb.	7½d.	8d. to 9d.	9d.	6½d. to 10d.	7d.	7d.	9d.	6d.	6½d. to 8d.
Ham	per lb.	10d.	10d. to 11d.	10d.	8d. to 11d.	8d.	9d.	11d.	8d.	8d. to 9d.
Eggs	per doz.	9d.	1/	1/6	9d. to 1/	1/	1/	1/	9d.	9d. to 1/
VI. GARDEN PRODUCE.										
Potatoes, wholesale	per ton	£3	£2 5/–£2 10	£3	£2 10/–£4	£1 10/	£3 15/	£8	£1 to £2	£2 to £2 10
Potatoes, retail	per cwt.	3/6	3/ to 6/	3/6	3/ to 6/	2/6	4/6	10/	2/	2/6 to 11/
Onions	per lb.	1½d.	1d. to 2d.	4d.	1d. to 1½d.	2d.	1½d.	2d.	1d.	1½d. to 3d.
Carrots	per doz. bnchs.	9d.	1/6 to 2/	2/	1/ to 2/	2/	3/	3/	1/3	8d. to 1/6
Turnips	per doz. bnchs.	9d.	1/3 to 2/	2/	1/ to 2/	2/	3/	3/	1/3	8d. to 2/
Cabbages	per doz.	7d. to 2/	1/	2/	1/ to 3/	2/	3/	3/	2/3	8d. to 2/6
VII. MISCELLANEOUS ARTICLES.										
Tea	per lb.	1/8	1/6 to 3/	2/6	1/6 to 5/	2/6	2/	2/3	2/	1/6 to 3/
Coffee	per lb.	1/6	1/6 to 1/9	1/9	1/6 to 2/	1/9	1/8	1/9	1/6	1/3 to 1/9
Sugar	per lb.	2½d.	3d. to 3½d.	3d.	3d. to 4d.	3½d.	3d.	3d.	3d.	2½d. to 3½d.
Rice	per lb.	2½d.	2d. to 3d.	3d.	2½d. to 3d.	3½d.	3d.	3d.	2½d.	2½d. to 4d.
Salt	per lb.	1d.	1d. to 2d.	1d.	1d.	1d.	1d.	1½d.	1d.	1d. to 2d.
Soap	per cwt.	15/ to 20/	18/	20/	10/ to 20/	20/	20/	17/6	14/	12/ to 20/
Candles	per lb.	5½d.	8d. to 1/	10d.	6d. to 9d.	10d.	9d.	8d.	8d.	5½d. to 1/
Tobacco	per lb.	5/4	5/6 to 6/6	5/6	5/ to 6/	6/6	5/	5/6	5/	5/ to 7/6
Coal	per ton	25/	30/ to 42/	40/	34/ to 52/	40/	35/	21/	30/	20/ to 35/
Firewood	per cord	32/	20/	33/	20/ to 36/	24/	30/	25/	18/	16/ to 28/
VIII. BEER, WINE, SPIRITS.										
Beer, colonial	per hhd.	£4	£4 10/	£4 10/	£4 10 to £5	£4 13/	£4 10/	£5	£4	£4 to £5 3/
Beer, English, bottled	per doz. qts.	13/	12/6 to 18/	14/	12/6 to 13/	16/6	14/6	15/	12/6	11/6 to 18/
Brandy	per gallon	27/	24/ to 25/	30/	25/ to 30/	25/	28/	25/	25/6	22/6 to 28/
Rum	per gallon	27/	25/ to 32/	27/	24/ to 26/	24/	22/	23/	23/6	20/ to 22/6
Whisky	per gallon	27/	24/ to 25/	27/	25/ to 30/	25/	26/	25/	28/	23/ to 28/
Gin	per gallon	25/	20/ to 30/	20/	21/ to 30/	17/	18/6	25/	23/6	19/ to 22/
Wine, Australian	per gallon	16/	14/ to 30/	15/	14/6 to 15/	13/	13/	15/	14/	10/6 to 20/
Wine, European	per gallon	18/	22/6 to 41/	22/6	16/6 to 25/	15/	20/	18/	10/ to 21/	10/6 to 24/

AVERAGE RATES OF WAGES IN EACH PROVINCIAL DISTRICT OF NEW ZEALAND DURING THE YEAR 1894.

Description of Labour.	Auckland.	Taranaki.	Hawke's Bay.	Wellington.	Marl-b'rough.	Nelson.	Westland (Goldfield).	Canterbury.	Otago (Part Goldfield)
1. AGRICULTURAL LABOUR.									
Farm-labourers:									
With board, per week	10/ to 15/	15/ to 22/6	20/ to 25/	10/ to 25/	20/	20/	20/	15/	15/ to 20/
Without board, per day	5/	5/ to 8/	8/	5/ to 8/	7/	6/	9/	6/ to 7/	..
Ploughmen:									
With board, per week	15/ to 20/	20/	25/	15/ to 30/	25/	20/	..	20/ to 40/	17/6 to 25/
Without board, per day	..	7/	8/	6/ to 8/	8/	6/	..	..	..
Reapers:									
With board, per week	15/ to 20/	1/*	25/ to 30/	20/ to 35/	40/	..	..	40/	20/ to 30/
Without board, per day	..	..	8/	6/ to 8/	8/	6/‡	..	..	5/ to 7/6‡
Mowers:									
With board, per week	15/ to 20/	4/ to 6/†	25/ to 30/	20/ to 40/	40/	..	..	40/	20/ to 30/
Without board, per day	5/	..	8/	6/ to 8/	8/	6/‡	..	..	5/ to 7/6‡
Threshers:									
With board, per week	20/	1/*	25/ to 35/	20/	40/	..	..	§	30/
Without board, per day	6/	..	8/	6/ to 9/	8/	6/‡	..	..	7/ to 7/6‡
2. PASTORAL LABOUR.									
Shepherds, with board, per annum ..	£52	£50 to £60	£60 to £80	£40 to £85	£60	£52	..	£52 to £65	£52 to £60
Stockkeepers, with board, per annum ..	£52	..	£50 to £60	£40 to £60	£52	£52	25/ p. wk.	£45 to £52	£52
Hutkeepers, with board, per annum ..	£52	..	£50	£40 to £60	£50	15/ p. wk.	..	£40 to £52	15/ to 20/ per wk.
Station-labourers:									
With board, per week	20/	15/ to 25/	25/	10/ to 25/	20/	20/	..	15/ to 20/	15/ to 20/
Without board, per day	..	..	..	4/ to 6/	5/‡	..	..	..	..
Sheep-washers:									
With board, per week	20/	..	30/	15/ to 30/	25/	15/	..	20/ to 25/	15/ to 40/
Without board, per day	..	7/	..	6/	8/	..	..	7/	..
Shearers, with board, per 100 sheep shorn	17/ to 20/	12/6 to 17/6	17/6	15/ to 20/	16/8	17/6	..	16/8	15/
Men-cooks on stations, with board, per week	20/ to 25/	20/	20/ to 25/	15/ to 35/	25/	30/	..	20/ to 25/	20/

* Per hour. † Per acre. ‡ With board. § 9s. to 10s. per 1,000 bushels.

AVERAGE RATES OF WAGES IN EACH PROVINCIAL DISTRICT OF NEW ZEALAND DURING THE YEAR 1894—*continued.*

Description of Labour.	Auckland.	Taranaki.	Hawke's Bay.	Wellington.	Marl-b'rough.	Nelson.	Westland (Goldfield).	Canterbury.	Otago (Part Goldfield).
3. ARTISAN LABOUR (per day, without board).									
Masons	8/	8/	8/ to 10/	7/ to 14/	..	12/	12/	8/ to 9/	8/ to 12/
Plasterers	8/	8/	8/ to 10/	7/ to 13/	..	12/	12/	8/ to 9/	8/ to 10/
Bricklayers	8/	8/ to 10/	10/	8/ to 12/	10/	12/	12/	8/ to 9/	8/ to 10/
Carpenters	7/ to 8	8/ to 10/	9/ to 10/	6/ to 10/	8/	8/	12/	7/ to 8/	6/ to 12/
Smiths	7/	9/ to 10/	9/	8/ to 12/	8/	9/	12/	7/ to 8/	7/ to 9/
Wheelwrights	7/	8/ to 10/	9/ to 10/	8/ to 11/	8/	9/	12/	8/ to 9/	8/ to 10/
Shipwrights	8/	..	10/ to 12/	9/ to 14/	8/	12/	12/	8/ to 9/	10/ to 12/
Plumbers	7/ to 8/	8/ to 10/	8/ to 10/	6/ to 12/	8/	9/	10/	8/ to 9/	8/ to 10/
Painters	7/6	7/ to 10/	8/ to 10/	6/ to 10/	8/	9/	9/	7/ to 8/	6/ to 10/
Saddlers	7/	7/ to 10/	8/ to 10/	6/ to 12/	8/	8/	8/	7/ to 8/	7/ to 12/
Shoemakers	6/6	8/ to 10/	7/6 to 10/	6/ to 10/	8/	8/	8/	8/ to 9/	7/ to 10/
Coopers	6/	7/ to 10/	9/ to 10/	7/ to 12/	..	7/	12/	8/ to 9/	8/ to 10/
Watchmakers	8/	10/	9/ to 10/	10/ to 15/	8/	9/	10/	9/ to 10/	7/ to 12/
4. SERVANTS.									
Married couples without family, with board, per annum	£50 to £80	£50 to £75	£80	£50 to £95	£65	£75	£70	£65 to £75	£60 to £80
Married couples with family, with board, per annum	£50 to £80	£60 to £80	£60 to £70	£40 to £70	..	£50	£50	£62 to £70	£50 to £65
Grooms, with board, per week ..	10/ to 15/	20/	20/	10/ to 30/	20/	..	40/	15/ to 25/	15/ to 20/
Gardeners:									
With board, per week	10/ to 15/	20/	20/ to 25/	15/ to 30/	20/	25/	..	20/ to 25/	18/ to 20/
Without board, per day	..	7/	..	5/ to 8/	7/	..	10/	5/ to 6/6	7/
Cooks, with board, per week	15/ to 20/	15/	15/	10/ to 20/	15/	30/	20/	10/ to 15/	15/ to 20/
Laundresses, with board, per week ..	15/ to 20/	17/6 to 20/	15/	10/ to 25/	15/	20/	15/	10/ to 15/	12/6 to 15/
General house-servants, with board, per week	10/ to 12/	8/ to 12/	12/	6/ to 15/	12/	10/	15/	9/ to 10/	10/ to 12/6
Housemaids, with board, per week ..	8/ to 10/	8/ to 12/	12/	8/ to 20/	12/	10/	15/	8/ to 10/	10/ to 12/6
Nursemaids, with board, per week ..	5/ to 8/	4/ to 6/	6/	5/ to 12/	7/	5/	7/6	6/ to 8/	5/ to 7/6

Average Rates of Wages in each Provincial District of New Zealand during the Year 1894—*continued.*

Description of Labour.	Auckland.	Taranaki.	Hawke's Bay.	Wellington	Marl-b'rough.	Nelson.	Westland (Goldfield)	Canterbury.	Otago (Part Goldfield).
4. Servants—*continued.*									
Needlewomen									
With board, per week	10/ to 12/	..	14/	..	15/	..	20/	10/ to 12/	..
Without board, per day	3/	2/6 to 3/	..	2/6 to 6/	5/	5/	..	3/6 to 5/	2/6 to 4/6
5. Miscellaneous.									
General labourers, without board, per day	6/ to 7/	6/ to 8/	8/	5/ to 8/	7/	6/	9/	5/ to 6/	8/
Stonebreakers, without board, per cubic yard	3/6 to 4/6	3/	4/	2/6 to 4/	..	4/	..	2/6 to 2/9	2/ to 3/
Seamen, with board, per month ..	£4 to £6	..	£4	£5 to £7	..	£6	£6	£4 to £6	£4 10/ to £5
Miners, without board, per day ..	6/ to 8/	..	..	..	8/	10/	10/	7/ to 8/	10/
Engine-drivers, without board ..	Per day. 6/ to 9/	Per day. 10/	Per week. 25/ to 30/*	Per day. 6/ to 15/	Per day. 8/	Per day. 8/	Per day. 12/	Per day. 10/ to 12/	Per day. 8/
Tailors, " ..	7/	8/	50/ to 60/	8/ to 10/	8/	9/	10/	8/ to 10/	10/
Tailoresses, " ..	3/4	5/	15/ to 25/	1/6 to 5/	5/	3/6	5/	4/ to 6/	3/9
Dressmakers, " ..	2/9	2/6	25/ to 30/	1/ to 5/	5/	6/	5/	4/ to 5/	2/6
Milliners, " ..	3/6	3/	25/ to 30/	1/ to 5/	5/	6/	Per week. 25/	5/ to 6/	4/
Machinists, " ..	3/6	5/	25/ to 30/	2/6 to 5/	5/	3/	15/	4/ to 5/	4/
Storekeepers, " ..	7/	40/†	40/ to 60/	Per week. 20/ to 60/	10/	Per week. 50/	50/ to 80/	8/ to 10/	8/ to 10/
Storekeepers' assistants, " ..	5/6	4/	30/ to 40/	15/ to 42/	8/	35/	50/	5/ to 7/	5/
Drapers' assistants, " ..	5/6	5/	35/ to 50/	20/ to 70/	8/	10/	60/	7/6 to 20/	5/
Grocers' assistants, " ..	5/6	4/	35/ to 50/	15/ to 60/	8/	35/	50/	7/6 to 10/	20/ ‡
Butchers, " ..	Per week. 30/ to 40/	7/	45/ to 50/	30/ to 60/	7/	40/	50/	6/ to 8/	6/6 to 9/
Bakers, " ..	35/ to 40/	8/	50/ to 60/	25/ to 60/	7/	45/	60/	7/ to 8/	8/ to 9/
Storemen, " ..	25/ to 40/	5/	45/ to 50/	25/ to 60/	10/	40/	60/	7/ to 10/	8/
Compositors, " ..	40/	8/	40/ to 60/	25/ to 60/	8/	50/	50/	10/ to 12/	10/

* With board. † Per week.

Railways.

The length of Government railways open for traffic on the 31st March, 1895, was 1,993 miles, the total cost thereof having been £15,352,613, and the average cost per mile £7,703. The cash revenue for the year 1894–95 amounted to £1,150,851 11s. 6d., excluding the value of postal services; and the total expenditure to £732,160 7s. 7d. The net cash revenue—£418,691—was equal to a rate of £2 14s. 6d. per cent. on the capital cost; the percentage of expenditure to revenue was 63·62.

The following statement shows the number of miles of Government railways open, the number of train-miles travelled and of passengers carried, and the tonnage of goods traffic for the past seven years:—

Year.	Length open.	Train-mileage.	Passengers.	Season Tickets issued.	Goods and Live-stock.*
					Tons.
1888–89	1,773	2,796,007	3,132,803	11,817	1,954,126
1889–90	1,813	2,868,203	3,376,459	12,311	2,112,734
1890–91	1,842	2,894,776	3,433,629	13,881	2,134,023
1891–92	1,869	3,010,489	3,555,764	16,341	2,122,987
1892–93	1,886	3,002,174	3,759,044	16,504	2,258,235
1893–94	1,948	3,113,231	3,972,701	17,226	2,128,709
1894–95	1,993	3,221,620	3,905,578	28,623	2,123,343

The particulars of the revenue and expenditure for the past seven years are given herewith:—

Year.	Passenger Fares.	Parcels and Luggage.	Goods and Live-stock.	Rents and Miscellaneous.	Total.	Expenditure.	Net Revenue.	Percentages of Expenditure to Revenue.	Percentages of Revenue to Capital Cost.		
	£	£	£	£	£	£	£		£	s.	d.
1888–89	323,447	34,102	610,488	29,578	997,615	647,045	350,570	64·86	2	12	0
1889–90	369,348	37,097	655,007	34,117	1,095,569	682,787	412,782	62·32	2	19	5
1890–91	353,593	38,997	690,779	38,332	1,121,701	700,703	420,998	62·47	2	18	11
1891–92	364,617	41,795	671,469	37,550	1,115,431	706,517	408,914	63·34	2	15	9
1892–93	390,619	44,801	707,785	38,316	1,181,521	732,141	449,380	61·97	3	1	0
1893–94	402,019	45,906	686,469	39,098	1,172,792	735,358	437,434	62·70	2	17	9
1894–95	385,149	43,270	683,726	38,706	1,150,851	732,160	418,691	63·32	2	14	6

It should be observed that the real gain to the colony is greater than the net revenue shown, by the value of the postal and other services performed by the railways (carriage of mails, &c.), amounting to £38,500 per annum.

In addition to the above railways there were 175 miles of private lines open for traffic on the 31st March, 1895—namely, the Wellington-Manawatu Railway, 84 miles; the Kaitangata Railway Company's line, 4 miles; and the Midland Railway, 87 miles.

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* The equivalent tonnage for live-stock has been given.

The cost of the construction of the Wellington-Manawatu Railway was £771,684, being at the rate of £9,187 per mile. The term "cost of construction," as applied to railways, includes value of equipment, rolling-stock, &c., not merely the road-line and buildings. The revenue for the twelve months ending the 28th February, 1895, amounted to £91,780, and the working-expenses to £43,152, equivalent to 47·02 per cent. of the revenue.

The traffic returns from the opened part of the Midland line were for the year ended the 30th June, 1894, £15,376 1s. 9d., and the expenditure was £8,803 18s. 10d., equivalent to 57·26 per cent. of the revenue. The total estimated cost of this line to the 30th June, 1894, was £1,250,000.

The following statement gives the number of miles of railway open for traffic and in course of construction in the Australian Colonies at the end of 1893:—

Colony.	Number of Miles open for Traffic on 31st December.		Number of Miles of Line in course of Construction on 31st December.	Cost of Construction of Open Lines.
	Private.	State.		
Queensland	..	2,379	..	16,348,945
New South Wales ..	81	2,351	179	34,657,571
Victoria	..	2,975	93	37,451,487
South Australia ..	17	1,664	57	11,996,970
Western Australia ..	453	320	271	928,277
Tasmania	48	475	..	3,759,898
New Zealand (March, 1894)	164	1,948	143	15,137,036

Accumulation.

The development of banking in New Zealand since the year 1857 has been very great. Taking for each year the average of the four quarters' returns made by the banks of issue, the figures for 1857, 1873, 1883, 1893, and 1894 are:—

Year.	Deposits.	Assets.	Liabilities.
	£	£	£
1857 ..	343,316	419,860	432,494
1873 ..	4,713,806	7,267,720	5,538,030
1883 ..	8,659,477	17,794,761	9,706,700
1893 ..	14,433,777	18,255,534	15,489,633
1894 ..	13,927,217	17,746,421	14,930,791

In 1873 the deposits of these banks were £16·38 per head of the population. In 1893 they were £21·82 per head, and in 1894 £20·51. The ratio of advances to deposits, which was 104·48 per cent. in 1873, reached its maximum in 1883, when it stood at 173·35 per cent. The proportion has since that year fallen steadily, till in 1894 it was only 86·39 per cent.

The averages for 1894 compared with those of the previous year show a decrease in deposits of £506,560; in assets, of £509,113; and in liabilities, of £558,842.

In 1886 the average amount of advances made by the banks was £15,853,420, equal to £27·23 per head of the mean population. The advances gradually declined in amount and proportion to population until 1891, when they were in value £11,549,145, or £18·34 per head. During the year 1892, however, there was an increase, the average of the advances having been £12,228,425, equal to an amount of £19·04 per head of population; and there was a further increase in 1893, the average being £12,797,563, equal to £19·35 per head. In 1894 they fell to £12,031,537 (£17·71 per head). The discounts were less in 1894 than in any year since 1872. The largest amount of discounts in any year was £6,061,959 in 1879, a rate of £13·53 per head. In 1889 the discounts were £2,850,944, equal to £4·66 per head; in 1890, £2,524,573, equal to £4·07 per head; in 1891, £2,314,325, or £3·68 per head; in 1892, £2,361,813, being again nearly £3·68 per head; in 1893, £2,307,649, equal to £3·49 per head; and in 1894, £2,052,246, or £3·02 per head.

There was, as above stated, a decrease of £506,560 in the deposits. Exclusive of Government deposits, the deposits bearing interest decreased from £9,897,541 to £9,372,531, or by £525,010; while the deposits not bearing interest increased from £4,063,760 to £4,106,833, or by £43,073. Thus there was a decrease of £481,937 in the average total of private deposits, owing, no doubt, to the lowering by the banks of their rates of interest.

The following shows the average amount of notes in circulation, notes and bills discounted, and bullion and specie in the banks in each of the two past years:—

Average Amount of	1893.	1894.	Increase (+) or Decrease (−).
	£	£	£
Notes in circulation	973,894	926,526	−47,368
Notes and bills discounted ..	2,307,650	2,052,246	−255,404
Specie and bullion	2,627,367	2,896,562	+269,195

Special Banking Legislation.

An Act was passed in 1893 intituled "The Banks and Bankers Act Amendment Act," under which, notwithstanding anything in previous legislation, the shareholders or proprietors of any bank may, from time to time, by extraordinary resolution, authorise its capital to be increased to such an amount and upon such terms as are deemed by them to be expedient. The holders of shares in such increased capital may be granted special privileges notwithstanding anything contained in the charter of the bank.

Any increased capital may be raised by the issue of new shares of such amount as is determined on by extraordinary resolution of the shareholders or proprietors.

The Bank-note Issue Act of the same year provides that notes issued or circulated in the colony by any bank shall, to the amount of the authorised issue, be a first charge on all the assets and property (including the paid-up capital, uncalled capital, and reserve fund—"Banking Act, 1894") of such bank, and that the notes shall be payable in gold only at the office of the bank at the place of issue of the said notes.

The assets and property of a bank are defined as assets for the payment of debts or other obligations contracted or entered upon or due and payable in the colony.

The other clauses (Part II.) of the same Act were originally passed for twelve months only, but their operation was extended in 1894 for another twelve months —viz., till September, 1895. As amended by subsequent enactments, they run as follows: The Governor may declare by Proclamation the notes of any bank named to be a legal tender of money to the amount therein expressed to be payable. The period of time is to be limited by the Proclamation, and no such Proclamation is to be made unless the Governor in Council is satisfied that, as between the bank and its creditors, its assets in the colony exceed its liabilities in the colony. The bank must further pay all such notes in gold on presentation, after expiry of the time limited, at the office of the bank at the place of issue. At any time within six months after the period limited by the Proclamation, the Colonial Treasurer, on being satisfied that a bank-note covered by the Proclamation has been presented and not paid, shall pay the same in gold to any *bonâ fide* holder.

On the 29th June, 1894, the Colonial Treasurer introduced in the House of Representatives three Bills relating to banking, which were thereupon passed through all stages and became law forthwith.

The most important of these, intituled "An Act to guarantee out of the Consolidated Fund a Special Issue of Shares by the Bank of New Zealand to the Amount of Two Million Pounds Sterling," provided for the increase of the capital by the issue of shares* to an amount not exceeding two million pounds sterling, in guaranteed shares of ten pounds each, without further liability. These shares are preferential in respect of both capital and dividend, and the liability of the holders of ordinary shares is to secure payment of the guaranteed shares and the dividends thereon. The directors can refuse to register the transfer of ordinary shares; and no transfer, though passed by directors, is to be held valid till authorised in writing by the President of the bank. The guaranteed shares are to be called in at the end of ten years, and cancelled on payment of the principal sum with accrued dividend. The rate of dividend on preferential shares is not to exceed 4 per cent. per annum, and is to be paid by the bank. The guaranteed or preferential shares and dividends thereon are to be a charge upon and, in case of default by the bank, payable out of the Consolidated Fund of the colony; but if at any time any money shall be payable under the guarantee, the assets and property of the bank are to be security for the repayment of money so advanced; if the money be not repaid, the Colonial Treasurer may appoint a receiver.

One-half of the sum of two million pounds authorised by the Act to be raised is to be at the disposal of the bank for use in its ordinary business, and the remainder is to be invested as the Colonial Treasurer may approve, or as may be specially provided by law. Until the guaranteed shares are called in and cancelled, no dividend is to be paid to ordinary shareholders without the

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* By further Amendment Act these shares may be issued in the form of negotiable stock certificates or warrants to bearer, of such amounts as the directors may determine. The certificates with warrants or coupons are transferable by delivery. The holders of stock certificates or warrants may exchange these for registered stock, which is made transferable in such amounts as directors may sanction. Shares or stock may be held by any person without limit as to number, provided that the total value does not exceed two millions sterling.

The Bank of New Zealand and Banking Act, 1895.

This Act was passed on the 4th of September. It provides for writing off the paid-up capital of the Bank of New Zealand (£900,000), together with the proceeds (estimated at £450,000) of the first call of £3 6s. 8d. on the reserve liability of £10 per share.

A sum of £500,000 new capital is to be raised by preferred shares, to be issued to the colony in exchange for Government securities. The preferred shares bear interest at 3½ per cent. The bank may within six years repurchase them at par. Further share capital is to be created by a second call of one-third of the reserve liability (£3 6s. 8d. per share) in four instalments, and the final third may be called up at any time after the 31st December, 1898. The sum of one million pounds, required by the Share Guarantee Act of 1894 to be invested as the Colonial Treasurer might approve, is released for employment by the bank in its ordinary business. So long as the colony remains liable under the Act, one of the directors of the bank is to be appointed by the Governor, and one of the present directors is to resign to make way for the Government appointee.

An Assets Realisation Board is established to purchase all the assets of the Estates Company and of the Auckland Agricultural Company for the sum of £2,731,706, being the estimated value of the properties on the 31st of March last, subject, however, to an adjustment of station accounts, the purchase-money to be paid in debentures issued by the Assets Board, having a nine years' currency and bearing interest at 3½ per cent. per annum from the 31st March, 1895, any deficiency to be guaranteed by the Government as a charge upon the Consolidated Fund of the colony.

Provision is made for securing the Government against loss on account of this guarantee, and the Colonial Treasurer may, in the event of any deficiency, appoint a Receiver in respect of the securities with the powers of a liquidator appointed by the Supreme Court. The Assets Realisation Board is to be a body corporate, consisting of three members, two appointed by the Governor and one chosen by the directors of the bank.

Section 3 of "The Banking Act, 1894," is repealed, and power is given to the Bank of New Zealand to purchase the business and assets of any other bank doing business in the colony, excepting such assets as are found to be bad, doubtful, or valueless. Any such purchase is conditional on ratification by the shareholders of the selling bank and the approval of Parliament.

So long as the colony remains in any measure liable under the Act or the Share Guarantee Act of 1894, the proprietors of the bank may not take any steps towards winding up or dissolving the bank.

The Assets Board are to draw up a balance-sheet every six months, and lay the same before Parliament.

The provisions of Part II. of "The Bank-note Issue Act, 1893," are extended till the 2nd September, 1896, if Parliament be then in session, or, if not, then till two months after the commencement of the ensuing session.

[*To face page 170.*

consent of the Colonial Treasurer, who is empowered to satisfy himself that any proposed dividend will not unduly affect the security of the colony in respect of the guarantee.

By section 5 of the Act, the Colonial Treasurer might require the directors to call up £500,000, being one-third of the reserve capital, within twelve months, and this has accordingly been done.

As provided by the Act, the head office of the bank has been removed to Wellington, and a new Board of directors elected. The Governor in Council has appointed a President, and an auditor of the business outside the United Kingdom. An auditor of the business within the United Kingdom has been appointed by the Agent-General.

If an unfavourable report by one or both of the auditors, confirmed by the President, as to the conduct of the business of the bank, be received by the Colonial Treasurer, the directors are to amend the management in such manner as the Treasurer may demand in writing.

The shares held in the Bank of New Zealand Estates Company (Limited) by the bank are, pending the completion of liquidation, to be treated in valuing as at par.

"The Bank Shareholders Act, 1894," provides that the directors of any bank may decline to register any transfer of shares upon which there is any liability made by a shareholder to any person of whose responsibility they may not be satisfied. "The Bank Directors and Shares Transfer Act, 1894," gives authority to directors to refuse approval, without assigning reasons, to any transfer of shares on which there is liability. It limits the number of directors to not less than five or more than seven.

Savings-banks.

The number of post-offices open for the transaction of savings-bank business at the end of 1894 was 348.

There were 28,669 new accounts opened in the year, and 21,930 accounts were closed. The total number of open accounts at the end of 1894 was 129,423, of which 95,497 were for amounts not exceeding £20.

The deposits received during the year amounted to £2,252,862 6s. 11d., and the withdrawals to £2,268,624 8s. 4d., the excess of withdrawals over deposits having thus been £15,762 1s. 5d. The total sum standing at credit of all accounts on the 31st December, 1894, was £3,340,879 11s. 4d., which gave an average of £25 16s. 3d. to the credit of each account.

There are seven savings-banks in the colony not connected with the Post Office. The total amount deposited in them in 1894 was £408,684 13s. 10d., of which the deposits by Maoris comprised £59. The withdrawals reached the sum of £437,733 13s. 7d., being in excess of the deposits by £29,048 19s. 9d. The total amount to the credit of the depositors at the end of the year was £725,713 14s. 9d., of which sum £284 1s. 5d. belonged to Maoris.

The following were the securities, &c., standing in the name of the Postmaster-General on account of the Post-Office Savings-Bank Fund on the 31st December, 1894 :—

Description of Securities, &c.	Nominal Value.			Value at Cost Price.		
	£	s.	d.	£	s.	d.
"Cheviot Estate Payment Act 1893" Debentures, 4½ per cent.	50,000	0	0	50,000	0	0
Consolidated Loan 1867 Debentures, 4 per cent.	13,000	0	0	12,480	0	0
"Consolidated Stock Act 1884" Debentures, 4½ per cent.	1,131,988	0	0	1,131,988	0	0
Defence Loan 1870 Debentures, 4 per cent. ..	75,000	0	0	72,000	0	0
Defence Loan 1870 Debentures, 4½ per cent...	8,100	0	0	8,100	0	0
District Railways Purchasing Act Debentures, 4 per cent.	42,000	0	0	36,076	17	8
District Railways Purchasing Act Scrip, 4 per cent.	34,100	0	0	34,100	0	0
General Purposes Loan 1873 Debentures, 4 per cent.	5,200	0	0	4,342	0	0
"Government Loans to Local Bodies Act 1886" Debentures, 4 per cent.	73,000	0	0	73,000	0	0
"Government Loans to Local Bodies Act 1886" Debentures, 4½ per cent.	249,800	0	0	249,800	0	0
Greymouth Harbour Board Debentures, 5 per cent.	90,000	0	0	90,000	0	0
Hamilton Borough Debentures, 5½ per cent...	3,000	0	0	3,000	0	0
Hokitika Harbour Board Debentures, 5 per cent.	10,000	0	0	10,000	0	0
Immigration and Public Works Loan 1870 Debentures, 4 per cent.	178,200	0	0	166,272	0	0
Immigration and Public Works Loan 1870 Debentures, 4½ per cent...	20,900	0	0	20,527	10	0
Imperial Immigration and Public Works Loan 1870 Guaranteed Debentures, 4½ per cent...	324,000	0	0	324,000	0	0
"Land for Settlements Act 1892" Debentures, 4 per cent.	1,100	0	0	1,100	0	0
"Land for Settlements Act 1892" Debentures, 4½ per cent.	53,966	0	0	53,966	0	0
"Lands Improvement and Native Lands Acquisition Act 1894" Debentures, 4 per cent.	31,800	0	0	31,800	0	0
"Native Land Purchases Act 1892" Debentures, 4½ per cent...	125,000	0	0	125,000	0	0
North Rakaia River Board Debentures, 5 per cent.	3,000	0	0	3,000	0	0
Oamaru Borough Debentures, 5 per cent. ..	5,000	0	0	5,000	0	0
Oamaru Gas Bonds, 5 per cent.	8,800	0	0	8,800	0	0
Oamaru Harbour Mortgages, 5 per cent. ..	30,000	0	0	30,000	0	0
Oamaru Harbour Mortgages, 5½ per cent. ..	32,000	0	0	32,000	0	0
Patea Harbour Board Mortgages, 4½ per cent.	10,000	0	0	10,000	0	0
Thames Borough Debentures, 6 per cent. ..	6,500	0	0	6,500	0	0
Thames Harbour Board Debentures, 5 per cent.	10,000	0	0	10,000	0	0
Treasury Bills, 4 per cent.	312,800	0	0	312,800	0	0
Westport Harbour Board Debentures, 5 per cent.	302,800	0	0	302,800	0	0
Post Office Account	..			..		
Totals	3,236,054	0	0	3,218,452	7	8

Summary of all Deposits.

The deposits previously stated for the banks of issue represent the average for the four quarters of the year. If the total deposits at the end of the year be assumed to be equal to the average for the last quarter, then it may be affirmed that, exclusive of Government moneys, the deposits in the several banks of issue and in the two classes of savings-banks amounted at the end of 1894 to £17,157,482. In addition, there are the deposits with building societies, which in 1893 were £231,255; and it is known that there were also deposits with financial companies, of which no particulars have been supplied to the department. The known deposits reach an average of £25 6s. 11d. per head of the population, exclusive of Maoris.

Building Societies.

There were 49 registered building societies in operation in the colony at the end of 1893. Of these, 9 were terminable societies, the rest were permanent.

The total receipts by these societies during their financial year were £639,979 6s. 8d., of which deposits comprised £260,480 1s. 10d.

The assets at the end of the year were valued at £911,451 9s. 8d. The total liabilities were to shareholders, reserve fund, &c., £662,611 16s. 1d., to depositors, £231,255 8s. 11d., and to bankers and other creditors, £17,584 4s. 8d.

Friendly Societies.

The Registrar of Friendly Societies received returns for the year 1893 from 372 lodges, courts, tents, &c., of various friendly societies throughout the colony, also from 31 central bodies. The number of members at the end of 1893 was 29,763.

The total value of the assets of these societies was £530,587, equivalent to £17 16s. 7d. per member. Of the total assets, the value of the sick and funeral benefit funds was £469,836.

The receipts during the year on account of the sick and funeral funds amounted to £67,961, and the expenditure to £50,414, of which the sick-pay to members reached the sum of £29,888. In addition to the sick-pay, the sum of £27,859 was paid out of the medical and management expenses fund for attendance given and medicine supplied to the members and their families.

Life Insurance.

There were existing in the colony at the close of the year 1893 as many as 64,382 life insurance policies, an average of over 95 in every 1,000 persons living. The gross amount represented by these policies was £17,685,050, an average of £274 14s. for each policy, and of £26 6s. 1d. for every European inhabitant of the colony at the end of the year. The distribution of these policies among the various life assurance offices is shown in the following table:—

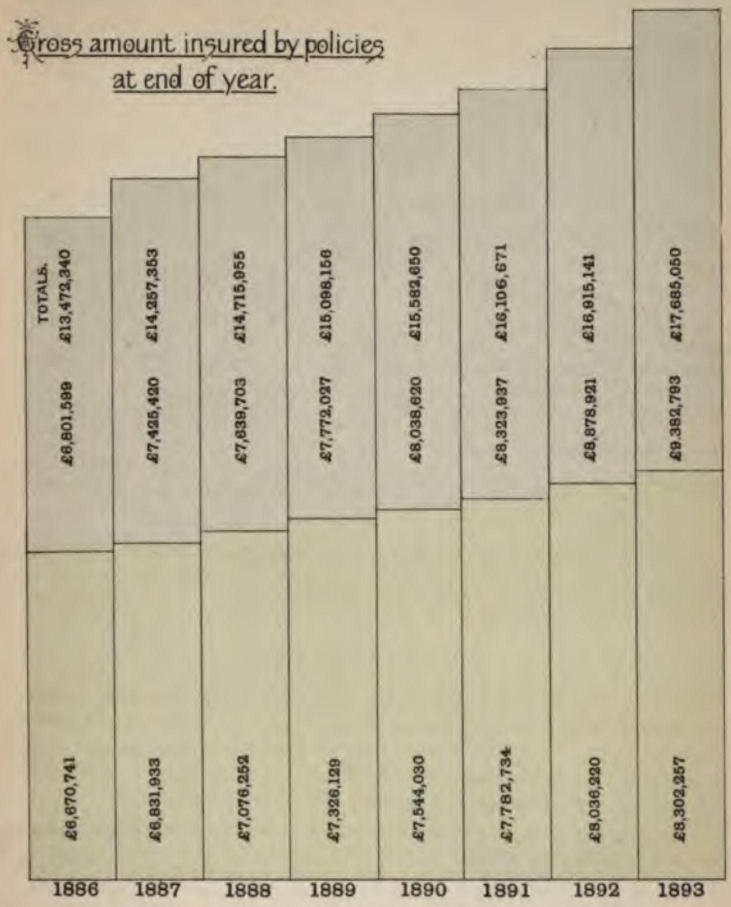
New Zealand Business of	Number of Years of Business in the Colony.	Number of existing Policies at End of Year 1893.	Gross Amount insured by Policies at End of Year 1893.		
			£	s.	d.
The Australian Mutual Provident Society	32	19,943	5,908,931	0	0
The Colonial Mutual Life Assurance Society (Limited)	10	3,598	1,030,108	1	11
The Equitable Life Assurance Society of the United States	9	880	431,458	0	0
The Mutual Assurance Society of Victoria (Limited)	10	1,172	243,254	17	11
The Mutual Life Association of Australasia	17	3,704	901,794	16	2
The National Mutual Life Association of Australasia (Limited)	14	3,198	795,388	9	8
The New York Life Insurance Company	7	178	71,858	0	0
The Life Insurance Department of the New Zealand Government	24	31,709	8,302,257	0	0
Totals	..	64,382	17,685,050	5	8

It will be observed that nearly half the policies are held in the Government Life Insurance Department. A special article concerning this institution will be found in Part III. of this volume.

Compulsory Insurance.

There is in New Zealand no law enforcing insurance against sickness, accident, old age, and invalidity. In Germany compulsion is resorted to, and as the subject is of great interest at the present time, the following remarks on the German system are quoted from the *Annals of the American Academy* for March last:—

> There are three chapters, in which the laws of compulsory insurance against sickness, against accidents, and against old age and invalidity are given textually, and the facts relating to organization and administration quoted in full detail. The first of these measures was passed on the 15th June, 1883. It was modified in April, 1892, in order to bring it into harmony with the other insurance laws which had in the meantime been passed. Sick insurance is about to be extended to agricultural labourers and to servants. At present nearly eight millions of persons are insured, and expenditures for sick relief amount to more than $23,800,000 (£4,950,000) annually. The purpose of sick insurance is to insure a certain and sufficient relief in case of illness during at least thirteen weeks. The employé pays two-thirds of the sick insurance and the employer one-third.
>
> Accident insurance is likewise compulsory and universal. The first law was passed on the 6th July, 1884, and dealt chiefly with industrial enterprises. The law of the 28th May, 1885, extended accident insurance to transportation agencies. A subsequent enactment, bearing the date of the 15th March, 1886, regulates accident insurance for State officials, military officers, and soldiers. A few months later there was a further extension to agriculture and forestry, and it is on the eve of extension to home industry and commerce. Accident insurance is at the cost of employers.
>
> Invalidity and old age insurance law was enacted on the 22nd June, 1889,



The average amount of Life Aſsurance per head of European population in New Zealand at the end of each of the above years was.—

1886	£22-17-2	1888	£24-4-7	1890	£24-14-0	1892	£26-0-1
1887	£23-12-7	1889	£24-6-9	1891	£26-7-2	1893	£26-6-0

The amount of Aſsurance per head of population for 1893 in the following Countries was.—

Australasia..£20. Canada..£11. United Kingdom..£13. United States £12.

LIFE ASSURANCE IN NEW ZEALAND.

REFERENCE

Government Life Insurance Dept. shewn thus	▭
Other Life Insurance Institutions — " — " —	▭

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and subjects to compulsory insurance after sixteen years of age all persons working for wages in every branch of trade, apprentices and servants included, managing officials, and commercial assistants with regular salaries up to $476 (£100). The old age and invalidity insurance fund is formed by equal contributions from employers and employed, and an Imperial subsidy amounting to $11·90 (£2 9s. 7d.) per annum is granted to every annuity.

Public opinion now very generally favours sickness insurance, regards accident insurance with complacency, but is apparently discontented with the old age and invalidity measure. The law seems to be defective, since, according to a reliable private calculation, nearly 40 per cent. have failed to meet their legal obligations to contribute. The official statement reduces this to 16 or 17 per cent. In four years' time 60,000 claims have had to be refused, and this furnishes ground for criticism and disappointment.

Crown Lands.

Before referring to the results of each of the various methods in operation in 1894–95 for the disposal of Crown lands it is desirable to state that a description of these systems will be found in the first of the special articles in Part III. of this work.

There were 38,695 acres of Crown land sold for cash or money-scrip during the year ended 31st March, the cash received being £47,033, and the scrip representing a value of £175. The lands absolutely disposed of without sale amounted to 89,517 acres, of which reserves set apart for public purposes comprised 21,079 acres; grants to Natives or Europeans under the Native Land Acts, &c., 68,185 acres; and those in satisfaction of land-scrip or otherwise, 253 acres.

The total area of land alienated from the foundation of the colony to the 31st March, 1895, was 21,048,989 acres. This does not include lands sold by Natives to Europeans direct, for which no Crown grants have been issued. The exact quantity so sold cannot be ascertained, but is believed to be very small.

The deferred-payment system was abolished by the Land Act of 1892. Nevertheless, in 1894–95, 5,454 acres were taken up on deferred payment under arrangements made before the Act came into force. The total area of land taken up under this system, from its commencement to the 31st March, 1895, was 1,284,629 acres. Of this quantity, the area forfeited was 250,320 acres, while 633,808 acres had been finally alienated by completion of payments. The area still held at the end of March, 1895, was, therefore, 400,501 acres. The following statement gives the number of acres taken up on deferred payment in each of the past ten years:—

	Acres.		Acres.
1885–86	58,451	1890–91	34,091
1886–87	50,527	1891–92	40,467
1887–88	41,100	1892–93	21,084
1888–89	54,419	1893–94	12,669
1889–90	41,376	1894–95	5,454

The operation of the perpetual-lease system with right of purchase, which became part of the land-law of the colony in 1882, had the effect of lessening the demand for land on deferred payment, as the rental of a leasehold was only 5 per cent. on the upset value of the land, and thus, until the purchase was made, if made at all, the settler had all his capital available for beneficial improvements. On the 31st March, 1895, 864,213 acres were in occupation under perpetual-lease, in 3,040 holdings. During the year, 1,263 acres, in 3 holdings, were taken up, and 62,692 acres converted into freehold. This tenure is now superseded by the methods introduced by "The Land Act, 1892," under which from the date of the passing of the Act up to 31st March last, 237,836 acres had been selected for occupation with right of purchase by 1,024 selectors, and 355,175 acres as leaseholds in perpetuity by 1,181 lessees. In addition, 174 persons exchanged 82,667 acres to lease in perpetuity from other tenures during the year.

The lands disposed of for village settlements are not included in the sales of land previously stated, and the following details of the number and area of selections to the 31st March, 1895, are given in order to show the extent of these settlements:—

	No.	A.	R.	P.
Village sections for cash	1,671	6,973	1	22
Village sections on deferred payments	1,497	14,840	0	17
Village settlements on perpetual lease	391	6,822	2	3

The freeholds acquired, in addition to the area taken up for cash, have been—

	No.	A.	R.	P.
Village sections, deferred payments	1,077	10,040	3	22
Village sections, perpetual lease ..	40	701	3	13

The forfeitures were—

Village sections, deferred payments	251	2,270	2	2
Village sections, perpetual lease ..	29	601	3	30

During 1894–95, 51,346 acres were taken up in the North Island by special settlement associations, the average size of each member's selection being about 189 acres.

The area of lands held from the Government on depasturing leases (exclusive of small grazing-runs) amounted to 10,845,558 acres, in 892 runs, yielding an annual rental of £101,938.

The total area of land occupied as small grazing-runs was, at the end of March, 972,055 acres, held by 531 persons, and the total rent received in 1894–95 was £20,003.

A summary of the transactions in Crown lands during the years ended 31st March, 1891–1895, will be found in the next four tables. The first of these shows the acreage of land taken up, and the second the number of holdings, under each description of tenure. The third exhibits the total acreage taken up year by year in each land district; and in the fourth the number of holdings are grouped according to size, the areas varying from less than 1 acre to 1,000 acres and over.

I.—Area of Land taken up under Various Tenures (excluding Pastoral Runs and Miscellaneous Leases) during Each of the Years ending 31st March, 1891–95.

	1890-1.	1891-2.	1892-3.	1893-4.	1894-5.
	Acres.	Acres.	Acres.	Acres.	Acres.
Cash lands	100,014	40,501	36,327	34,999	38,695
Deferred payments	34,091	40,467	21,084	12,669	5,454
Perpetual lease and small areas ..	288,917	282,547	122,558	3,854	1,263
Occupation with right of purchase	..	..	54,271	108,133	75,478
Lease in perpetuity	..	..	55,320	179,993	91,799
Agricultural lease	551	90	194	365	45
Village settlement—					
Cash	210	429	528	2	24
Deferred payment	370	182	391	..	..
Perpetual lease	954	893	2,640	..	..
Village settlement, occupation with right of purchase	..	..	..	1	23
Village settlement, lease in perpetuity	..	..	..	3,953	4,050
Village - homestead special settlement	350	2,213	494	2,550	2,743
Special settlement associations ..	71	1,923*	157,381†	68,852†	†51,346
Homestead	945	1,010	38	..	..
Special-settlement improved farms	..	..	..	..	9,731
Small grazing-runs	86,161	159,465	92,927	252,693	117,846
Totals .. —..	512,634	529,720	544,153	668,064	398,497

II.—Number of Holdings taken up under Each Kind of Tenure (excluding Pastoral Runs and Miscellaneous Leases and Licenses) during the Years ended 31st March, 1891–95.

	1890-1.	1891-2.	1892-3.	1893-4.	1894-5.
	No.	No.	No.	No.	No.
For cash	573	493	552	497	392
Deferred payments	258	223	169	96	47
Perpetual lease and small areas ..	788	824	385	17	3
Occupation with right of purchase ..	..	..	161	461	398
Lease in perpetuity	..	..	126	612	372
Agricultural lease	4	2	4	5	2
Village settlement—					
Cash	87	89	75	3	23
Deferred payment	51	23	29	..	..
Perpetual lease	56	59	164	..	..
Occupation with right of purchase ..	..	..	..	5	30
Lease in perpetuity	..	..	2	208	232
Village-homestead special settlement ..	10	140	33	118	60
Special settlement associations ..	2	13	838	290	262
Homestead..	9	8	1	..	..
Improved-farm special settlement ..	..	..	..	..	107
Small grazing-runs	43	80	39	142	60
Totals	1,881	1,954	2,578	2,454	1,988

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* Perpetual lease. † Lease in perpetuity.

III.—Lands taken up during the Years ended 31st March, 1891–95 (exclusive of Pastoral Runs and Miscellaneous Leases).

Land District.	1890-1.	1891-2.	1892-3.	1893-4.	1894-5.
	Acres.	Acres.	Acres.	Acres.	Acres.
Auckland	95,510	105,120	115,454	134,992	99,313
Hawke's Bay	45,603	36,008	49,831	24,356	20,141
Taranaki	33,785	55,237	49,064	13,954	35,113
Wellington	108,053	82,311	156,297	84,871	49,586
Nelson	23,808	12,992	17,797	36,739	34,907
Marlborough	11,023	3,016	8,055	8,227	18,353
Canterbury	133,761	62,831	12,777	94,861	33,744
Westland	313	1,010	162	1,346	1,826
Otago	47,450	141,565	90,043	159,050	80,439
Southland	13,328	29,630	44,673	109,668	25,076
Totals	512,634	529,720	544,153	668,064	398,498

IV.—Holdings taken up during the Years ended 31st March, 1891–95 (exclusive of Pastoral Runs and Miscellaneous Leases), classified according to size.

Size.	1890-1.	1891-2.	1892-3.	1893-4.	1894-5.
	No.	No.	No.	No.	No.
Under 1 acre	170	214	154	176	256
1 to 50 acres	531	581	727	739	696
51 to 250 acres	603	617	1,253	933	756
251 to 500 acres	307	255	264	341	169
501 to 1,000 acres.. ..	173	187	104	150	70
1,001 acres and upwards ..	97	99	76	115	40
Totals	1,881	1,954	2,578	2,454	1,988

Lands for Settlement.

"The Land for Settlements Act, 1892," enabled the Government to buy from private persons suitable properties for cutting up and leasing in farms of not more than 320 acres each. Further powers were given the Government by an Act passed in 1894, which authorises the compulsory taking of estates in cases where the owners refuse to sell. A full description of the system and its objects is given in the special article on the land-laws of the colony. Particulars of the estates which have been offered for selection and the remarks of the Surveyor-General in his report of the 18th June, 1895, are appended here:—

PARTICULARS OF ESTATES WHICH HAVE BEEN OFFERED FOR SELECTION.

Name of Estate.	Total Area purchased.			Area selected.			Number of Selectors.	Total Annual Rental of Sections let.			Area not selected at 31st March, 1895.			Rental placed on Land not selected.			Total Cost of Estate to 31st March, 1895.			Interest on Capital invested in Estate derived from Rentals of Land let.	Arrears of Rental, 31st March, 1895.		
	A.	R.	P.	A.	R.	P.		£	s.	d.	A.	R.	P.	£	s.	d.	£	s.	d.	Per cent.	£	s.	d.
Pareora ..	620	2	13	611	3	15	29	397	17	6		..			..		7,207	16	1	5·52	8	16	9
Studholme Junc.	107	2	17	104	2	8	4	73	4	6		..			..		1,327	10	3	5·51	..		
Kapua	574	1	5	572	1	22	12	270	4	0		..			..		4,742	7	10	5·69	31	14	4
Te Anaraki ..	347	3	18	344	1	25	22	281	9	6		..			..		5,532	11	11	5·09	71	12	3
Pomahaka ..	7,462	3	1	5,341	3	24	21	894	1	4	1,920	0	31	300	4	2	21,156	0	6	4·22	207	19	1
Blind River ..	5,020	0	0	1,954	0	0	8	370	7	7	2,826	0	0*	447	11	5†	15,187	17	10	2·43	..		
Totals ..	14,133	0	14	8,929	0	14	96	2,287	4	5	4,746	0	31	747	15	7	55,154	4	5	4·14	320	2	5

* This area of 2,826 acres has since been reduced by the selection of 750 acres.

† This rental of £447 11s. 5d. has since been reduced by the selection of 750 acres, the rental of which is £170 4s. 10d., leaving the figures in the above column £277 6s. 7d.; an area of 487 acres of Crown land included in the estate, valued at £85 12s. of rental, is not included in these figures.

It will thus be seen that, on the whole of the transactions, interest at 4·14 per cent. is derived from rentals of lands let. This statement, however, is based on the assumption that none of the selectors are in arrear, which is not the case—some of the selectors, like those on ordinary Crown lands, are in arrear. The first few years of settlement in any country are the most trying to settlers, for the expenses of building, fencing, stock, seed, and others incidental to the first occupation of country come all at once, and before any or very little return is received from the land. The fall in the price of stock and produce during the year under consideration is another factor which cannot be ignored in connection herewith. So that it is not surprising if some of the settlers are in arrear during the early years of settlement. The total amount the settlers were behindhand in their payments on the 31st March was £320 2s. 5d., owing by twenty-eight selectors. These figures have been reduced to fourteen selectors, owing £216 9s. 4d. at the present date.

Improved Farm Settlements.

To provide work for unemployed persons and settle them permanently on the land, a system was authorised in 1894 under which suitable blocks are set aside in areas of 10 acres to 200 acres, and assistance is given by Government to cover cost of clearing, seed, and house-building. The settlers pay 4 per cent. interest, besides the rental of their lands, and these lands are charged with the amounts advanced. On the 31st March the advances to the settlers amounted to £5,698, and the value of the improvements on the land was £6,964. At the above date 9,731 acres had been allotted, to 107 settlers. What is known as the "half-time system" has been introduced, the purpose of which is to find enough employment to support the settlers, leaving them meanwhile to improve their farms.

Government Advances to Settlers.

In 1894 was passed the Government Advances to Settlers Act, designed to afford, consistently with the public safety, a relief to the settlers to whom high rates of interest and the heavy incidental expenses on the mortgage of land had become burdensome, and thus to remove an obstacle to the progress of the colony. As this important measure is the subject of a special article, it is unnecessary to do more here than exhibit the extent to which advances had been authorised at the latest date for which information has been published. It must be remembered that the measure did not become law till the 24th October, 1894, and, to quote from the report of the Superintendent, "is just completing its trial, the office having consequently to be regarded as only now emerging from the temporary or experimental stage." He adds his opinion that the Act cannot but prove of substantial benefit to the colony.

GOVERNMENT ADVANCES TO SETTLERS TO 31ST MAY, 1895.

Provincial Districts.	Advances authorised on Freehold Securities.		Advances authorised on Leasehold Securities.		Advances authorised on Combined Freehold and Leasehold Securities.		Totals.	
	No.	Amount.	No.	Amount.	No.	Amount	No.	Amount.
		£		£		£		£
Auckland	45	13,495	1	350	..	..	46	13,845
Taranaki	101	40,075	21	3,195	2	675	124	43,945
Hawke's Bay ..	32	12,030	14	2,550	..	..	46	14,580
Wellington.. ..	155	77,995	87	16,055	3	1,530	245	95,580
Marlborough ..	15	6,932	2	100	..	..	17	7,032
Nelson	11	5,375	1	100	..	..	12	5,475
Canterbury ..	37	23,450	26	2,235	..	..	63	25,685
Westland	..	..	..	..	..	..	..	..
Otago and Southland	196	92,405	46	4,770	1	150	243	97,325
Totals	592*	271,757	198†	29,355	6‡	2,355	796	303,467

The applications on which the Board declined to authorise advances were: 270, representing £145,520 on freehold securities; 249, representing £49,754 on leaseholds; and 13, representing £8,140 on freehold combined with leasehold.

The advances offered, which, being less than the amounts required, were declined by applicants, numbered 47, representing £25,470 on freehold securities; and 9, representing £1,135 on leaseholds.

The total number of applications for loans received up to 31st May, 1895, was 2,016, and the amount applied for £843,188.

The following are the purposes for which the advances were stated to be required: For releasing mortgage, £354,733; for releasing mortgage and for improvements, £200,358; for releasing mortgage and for stock, £7,700; for releasing mortgage and for stock and improvements, £7,242; for purchase of other land, £12,257; for converting leasehold into freehold, £29,161; for converting leasehold into freehold, and for improvements and stock, £12,760; for paying balance of purchase-money, and for improvements, £33,604; for improvements, £130,483; for stock and improvements, £41,995; and for purposes not stated in the applications, £12,895: making a total of £843,188 applied for.

Occupation of Land.

The results of the last census show that in April, 1891, there were in New Zealand 43,777 occupied holdings of over 1 acre in extent, covering an area of 19,397,529 acres, of which 12,410,242 acres were freehold of the occupiers, and 6,987,287 acres were rented from—(1) private individuals, (2) Natives, (3) public bodies, and (4) the Crown (for other than pastoral purposes). The following table shows the number of holdings of various sizes, and number of acres held in fee-simple and on lease, excluding the Crown lands rented for pastoral purposes only:—

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* 431 of these advances, representing £115,107, were in sums not exceeding £500.
† 195 of these advances, representing £26,605, were in sums not exceeding £500.
‡ 5 of these advances, representing £1,555, were in sums not exceeding £500.

Sizes of Holdings.	Number of Holdings.	Acreage. Freehold.	Acreage. Leasehold, &c.*	Acreage. Total.
Acres. Acres.				
1 to 10	11,116	28,124	24,343	52,467
10 „ 50	8,899	148,965	105,751	254,716
50 „ 100	5,613	277,135	158,128	435,263
100 „ 200	6,851	654,729	374,022	1,028,751
200 „ 320	3,916	609,857	403,462	1,018,319
320 „ 640	3,802	1,057,676	660,070	1,717,746
640 „ 1,000	1,321	662,612	395,849	1,058,461
1,000 „ 5,000	1,675	2,144,627	1,280,558	3,425,185
5,000 „ 10,000	247	1,208,819	559,980	1,768,799
10,000 „ 20,000	189	1,911,063	788,341	2,699,404
20,000 „ 50,000	117	2,507,848	833,083	3,340,931
50,000 „ 100,000	24	801,647	723,000	1,524,647
Upwards of 100,000 acres ..	7	397,140	680,700	1,077,840
Totals, 1891	43,777	12,410,242	6,987,287	19,397,529
Totals, 1886	36,485	11,728,236	5,348,838	17,077,074
Totals, 1881	30,832	10,309,170	4,897,727	15,206,897

The extent of land rented from the Crown for pastoral purposes, including the small grazing-runs, amounted in April, 1891, to 12,469,976 acres.

The number of persons engaged in agricultural and pastoral pursuits in 1891, as ascertained from the results of the census taken in April of that year, was 68,607, of whom 65,950 were males and 2,657 females. Of this number 56,671 males and 2,387 females were directly engaged in agricultural, and 9,279 males and 270 females in pastoral occupations.

Ownership of Land.

Statistics of land assessed under "The Land and Income Assessment Act, 1891," were prepared in 1892 by the taxing department. The most important table then made shows the number of freeholders outside boroughs and town districts, classified according to size of holding, with the values, improved and unimproved, of the land held by each class. From this table are excluded the holdings of persons having less than 5 acres, and included are all lands outside towns; that is to say, lands which may be considered productive. Ownership of land is of course distinct from occupation, and the number of owners must necessarily be less than the number of occupied holdings shown previously in the table giving census results:—

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* Excluding Crown pastoral leases.

Freeholders of Five Acres and over, classified according to Size of Holding (exclusive of Land in Boroughs and Town Districts, etc.).

Acres.	Number of Owners.	Improved Value.*	Unimproved Value.
		£	£
5 and under 10 ..	2,820	678,032	312,139
10 „ 20 ..	3,015	806,959	401,425
20 „ 30 ..	2,267	663,050	352,021
30 „ 40 ..	1,428	532,242	292,753
40 „ 50 ..	2,318	642,000	359,245
50 „ 60 ..	2,412	813,165	469,106
60 „ 70 ..	1,463	522,686	295,523
70 „ 80 ..	1,162	582,378	373,015
80 „ 90 ..	1,423	546,970	310,777
90 „ 100 ..	1,061	561,973	332,253
100 „ 200 ..	8,267	5,461,487	3,239,817
200 „ 320 ..	4,575	4,688,671	2,861,409
320 „ 500 ..	2,531	4,352,224	2,680,446
500 „ 640 ..	1,022	2,377,803	1,470,907
640 „ 1,000 ..	1,143	3,652,884	2,342,827
1,000 „ 2,000 ..	992	5,121,688	3,381,176
2,000 „ 3,000 ..	311	2,703,380	1,798,500
3,000 „ 4,000 ..	146	1,706,128	1,150,432
4,000 „ 5,000 ..	109	1,393,844	969,723
5,000 „ 6,000 ..	66	1,047,158	717,983
6,000 „ 7,000 ..	50	822,486	564,312
7,000 „ 8,000 ..	38	727,542	477,931
8,000 „ 9,000 ..	29	648,600	436,612
9,000 „ 10,000 ..	25	778,427	537,801
10,000 „ 20,000 ..	148	5,495,958	3,771,082
20,000 „ 30,000 ..	45	2,743,301	1,839,700
30,000 „ 40,000 ..	30	2,517,765	1,741,038
40,000 „ 50,000 ..	9	987,659	719,708
50,000 „ 75,000 ..	14	1,418,031	994,463
75,000 „ 100,000 ..	6	1,086,623	859,028
100,000 „ 150,000 ..	4	624,980	421,772
150,000 and over ..	6	2,583,281	1,853,538
Totals	38,935	59,289,375	38,328,462

A comparison of last assessment with the assessments of 1882, 1885, and 1888 gives the following results:—

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* "Improvements" are defined as including houses and buildings, fencing, planting, draining of land, clearing from timber, scrub, or fern, laying down in grass or pasture, &c.

FREEHOLDERS OF LAND (5 ACRES AND OVER) OUTSIDE BOROUGHS AND TOWN DISTRICTS, ETC.

Acres.	Year	Persons.		Companies.		Totals.	
		No.	Improved Value.	No.	Improved Value.	No.	Improved Value.
			£		£		£
5 and under 100	1892	19,323	6,214,330	46	135,125	19,369	6,349,455
	1889	18,752	6,337,531	53	141,573	18,805	6,479,104
	1886	17,043	5,953,325	32	80,964	17,075	6,034,289
	1883	14,740	5,150,215	26	16,761	14,766	5,166,976
100 " 1,000	1892	17,513	20,399,453	25	133,616	17,538	20,533,069
	1889	16,702	17,113,939	41	245,925	16,743	17,359,864
	1886	15,451	18,008,086	20	132,663	15,471	18,140,749
	1883	14,248	17,758,653	19	137,905	14,267	17,896,558
1,000 " 10,000	1892	1,740	14,702,987	26	246,266	1,766	14,949,253
	1889	1,608	12,902,749	26	326,191	1,634	13,228,940
	1886	1,615	13,610,112	30	417,853	1,645	14,027,965
	1883	1,466	13,746,311	18	221,280	1,484	13,967,591
10,000 " 50,000	1892	212	10,379,708	20	1,364,975	232	11,744,683
	1889	201	9,333,536	22	981,710	223	10,315,246
	1886	213	9,633,758	17	684,788	230	10,318,546
	1883	215	10,516,263	9	261,181	224	10,777,444
50,000 and over ..	1892	18	2,257,541	12	3,455,374	30	5,712,915
	1889	16	1,851,590	11	3,340,459	27	5,192,049
	1886	18	2,312,891	11	2,824,249	29	5,137,140
	1883	15	2,243,220	8	3,299,023	23	5,542,243
Totals ..	1892	38,806	53,954,019	129	5,335,356	38,935	59,289,375
	1889	37,279	47,539,345	153	5,035,858	37,432	52,575,203
	1886	34,340	49,518,172	110	4,140,517	34,450	53,658,689
	1883	30,684	49,414,662	80	3,936,150	30,764	53,350,812

The Commissioner of Taxes remarked in his report on the last assessment that "the number of owners of 5 acres and over—38,935—is 1,503 more than in 1888, and the total value—£59,289,375—is an increase of £6,714,172. It appears that 19,369, or very nearly half the owners, possess less than 100 acres of land. There are 17,538 owners of from 100 to 1,000 acres, value £20,533,069; 1,766 owners of from 1,000 to 10,000 acres, value £14,949,253; 232 owners of from 10,000 to 50,000 acres, value £11,744,683; and 30 owners of 50,000 acres and over, value £5,712,915.

The *total* number of owners of land in the colony was 91,501, and the value of their holdings amounted to £92,371,166 for improved land, £54,427,175 representing the unimproved value. There are included a considerable number of properties which were assessed to "owner," the names of the persons to whom they belonged not being ascertainable or ascertained by the assessors; and there are also included properties of societies and associations not being liable to taxation. The foregoing make up a total of 1,845; and, in comparing the figures now given with those of the 1888 assessment, allowance should be made for the fact that they were omitted in the 1888 statistics. Properties assessed to "owner" may, as a rule, be taken to be under £100 in value.

About half the landowners—namely, 45,192—had land of an
of the total, land of a less improved value than £100.
A table is added giving the number of owners, classified according
unimproved value of less than £100, and 23,709, or about a fourth
to the values of their holdings.

Class.	Number of Owners.	Improved Value.	Number of Owners.	Unimproved Value.
		£		£
Under £500	63,841	10,825,213	76,399	8,621,360
£500 and under £1,000	12,901	8,888,580	6,922	4,794,530
£1,000 „ £10,000 ..	13,569	33,938,211	7,496	19,208,387
£10,000 and over	1,190	38,719,162	684	21,802,898
Totals	91,501	92,371,166	91,501	54,427,175

The total value of all the land in the colony, with improvements, was assessed at £122,225,029. Crown and Native lands, with reserves, &c., account for the difference between the sum given in the table above and the full value.

To convey an idea of the number of persons and companies owning large estates, a schedule of those owning 10,000 acres and more of country land on the 1st November, 1891, is given hereunder:—

FREEHOLDERS OF 10,000 ACRES AND OVER, CLASSIFIED ACCORDING TO SIZE OF HOLDING.

Size of Holding.	Persons.		Companies.		Total.	
	No.	Area.	No.	Area.	No.	Area.
		Acres.		Acres.		Acres.
10,000 to 20,000 acres ..	139	1,964,760	9	121,070	148	2,085,830
20,000 „ 30,000 „ ..	42	1,038,860	3	71,498	45	1,110,358
30,000 „ 40,000 „ ..	24	827,996	6	213,759	30	1,041,755
40,000 „ 50,000 „ ..	7	301,480	2	90,952	9	392,432
50,000 „ 75,000 „ ..	12	753,642	2	137,256	14	890,898
75,000 „ 100,000 „ ..	5	432,555	1	88,350	6	520,905
100,000 „ 150,000 „ ..	1	118,157	3	358,831	4	476,988
150,000 acres and over ..	..	..	6	1,321,036	6	1,321,036
Totals	230	5,437,450	32	2,402,752	262	7,840,202

Agriculture.

The agricultural statistics, which are collected annually in February or March, take into account only such occupied holdings as are wholly or partly under cultivation, and moreover do not include those occupied by aboriginal natives. Information about the farming carried on by the Maoris is obtained only when a census of the Native race is taken. In 1891 the Maoris had under wheat a total area of 11,203 acres; under maize, 5,599 acres; potatoes, 16,093 acres; other crops, 16,221 acres; and in sown grasses, 26,718 acres.

A summary of the results of the agricultural statistics collected in February, 1895, is exhibited in the two following tables: the first showing the produce of the principal crops in each provincial district; the second, the number of holdings, and the acreage under various kinds of crops and in sown grasses. From these tables it will be seen that the final results of the recent collection give the number of cultivated holdings over 1 acre occupied by Europeans as 46,676. It should, however, be observed that it is a common practice in Otago and Canterbury for persons to take unimproved lands from the proprietors in order to raise one, two, or three grain-crops therefrom, the land being afterwards sown down with grass-seed. Lands so occupied are returned as separate holdings. When the low price of grain renders cropping unprofitable, either land is not taken up in this manner, or land so occupied reverts to the owner and is included with the rest of his holding:—

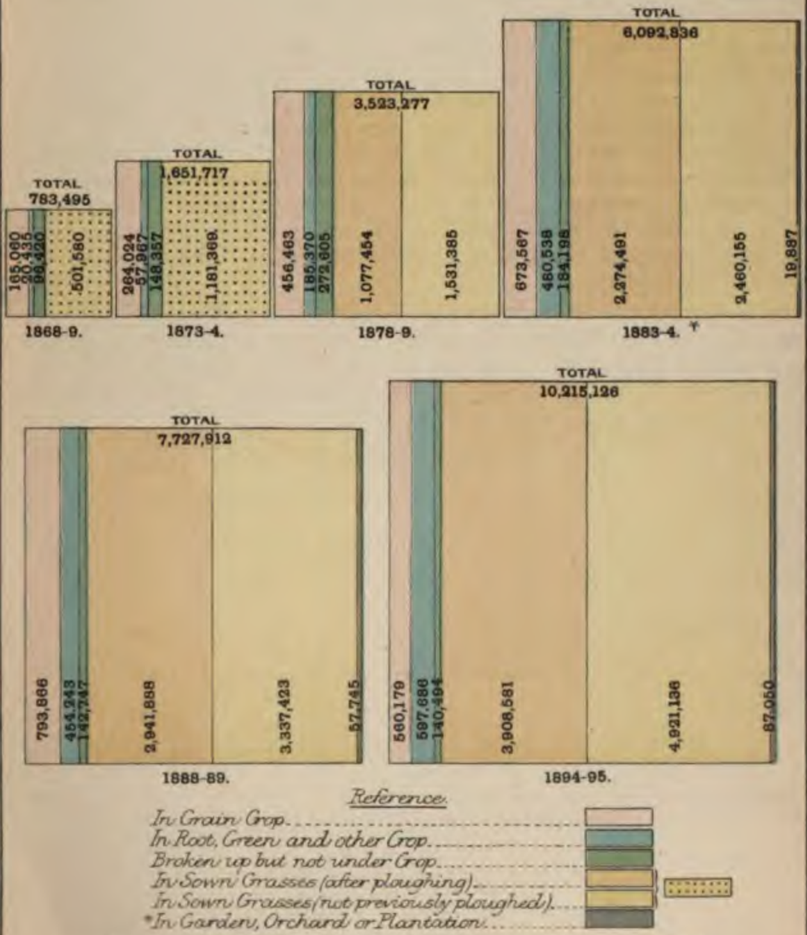
PRODUCE OF PRINCIPAL CROPS.

Provincial Districts.	Wheat.	Oats.	Barley.	Hay.	Potatoes.
	Bush.	Bush.	Bush.	Tons.	Tons.
Auckland	48,844	129,634	27,758	14,500	22,445
Taranaki	8,993	76,362	14,832	7,389	5,729
Hawke's Bay ..	6,039	125,898	27,699	8,799	7,867
Wellington	93,457	475,181	13,872	7,866	15,222
Marlborough ..	61,159	68,686	92,977	2,593	5,241
Nelson	22,894	97,447	110,689	4,434	6,615
Westland	..	..	..	412	1,214
Canterbury	2,540,936	3,327,998	423,906	24,779	44,155
Otago	830,715	5,920,187	288,879	7,717	31,381
Totals ..	3,613,037	10,221,393	1,000,612	78,489	139,869

AGRICULTURE.

Land in Cultivation.

(ACRES.)



*No returns until 1883-84. †Plantations not included in Year 1883-84.

T. M. Grant delt.

Provincial Districts.	Number of Holdings.	Number of Acres broken up, but not under Crop.	Number of Acres under Crop.													Total under all Kinds of Crops (including Sown Grasses), and of Land broken up, but not under Crop.
			In Grain and Pulse.					In Green and other Crops.				In Sown Grasses.				
			Wheat.	Oats.	Barley.	Other Crops.	Total under Grain-crops	Oats sown for Green Food or Hay.	Potatoes.	Other Crops.	Total under Green and other Crops.	Hay.	In Grass (including La nd in Hay) after having been ploughed.	Grass-sown Lands (including Lands in Hay) not previously ploughed.		
Auckland ..	11,237	23,934	1,934	4,795	1,005	5,677	13,411	21,002	4,376	40,170	65,548	12,268	431,021	957,419		1,491,333
Taranaki ..	3,385	1,374	332	3,199	436	404	4,371	2,379	1,167	4,777	8,323	4,837	102,460	321,854		438,382
Hawke's Bay	2,187	18,705	274	4,503	905	349	6,031	4,426	1,127	19,843	25,396	6,219	312,622	1,034,234		1,396,988
Wellington	7,055	11,804	3,584	19,477	620	851	24,532	7,756	2,713	23,982	34,451	5,665	224,391	1,684,119		1,979,297
Marlborough	1,086	3,013	2,448	3,317	3,923	1,866	11,554	7,481	835	4,184	12,500	1,362	63,521	162,350		252,938
Nelson ..	2,526	3,058	998	4,108	4,786	411	10,303	9,479	1,239	6,417	17,135	3,441	82,573	194,539		307,608
Westland ..	418	87	..	..	..	2	2	464	245	146	855	326	3,373	15,613		19,930
Canterbury	8,624	30,717	107,352	123,542	14,728	11,412	257,034	47,443	7,067	134,892	189,402	17,565	1,384,950	329,082		2,191,185
Otago ..	10,158	47,802	31,653	188,911	10,116	2,261	232,941	66,730	6,570	170,776	244,076	4,931	1,303,670	221,926		2,050,415
Totals ..	46,676	140,494	148,575	351,852	36,519	23,233	560,179	167,160	25,339	405,187	597,686	56,614	3,908,581	4,921,136		10,128,076

In 1876 the number of occupied and cultivated holdings was estimated to be, on an average, 14·88 to every 100 adult males; in 1881, 17·30; in 1886, 20·17; and in 1891, 22·79. Assuming the ratio of adult males to total male population to be still the same as existed at the census of 1891, the number of holdings in 1895 gives an average of 25·40 to every 100 of the adult male population. It is highly satisfactory to observe this progress, indicating as it does that a continually increasing proportion of the grown people are settling upon the land.

The extent of land in cultivation (including sown grasses and land broken up but not under crop) amounted to 10,128,076 acres. Of this area, land under artificial grasses comprised 87·18 per cent.; land under grain-crops, 5·53 per cent.; land under green and other crops, 5·90 per cent.; and land in fallow, 1·39 per cent.

The wheat harvest of 1895 was generally good throughout the colony, the total yield showing an average of 24·32 bushels per acre. But, as only 148,575 acres were sown in wheat, the crop realised was not more than 3,613,037 bushels, against 4,891,695 bushels in 1894, 8,378,217 bushels in 1893, and 10,257,738 bushels in 1892. Owing to the poor harvest in 1894, the exports of wheat and flour (in equivalent bushels of wheat) for that year were 289,326 bushels only, against 2,709,311 bushels in 1893; while the imports increased from 2,231 bushels in 1893 to 65,816 bushels in 1894.

Taking an average of eighteen years, it is found that, exclusive of the quantity required for seed, the yearly consumption of wheat per head of mean population is 7·34 bushels. It is held that this rate is at least one bushel too high (the proportion last year was 6·45 bushels) owing to over-estimates in the yields returned by farmers in the past. Accepting, then, 6·30 bushels as the amount per head required for food, and assuming the mean population for 1895 to be 735,000 persons (including Maoris), it follows that 4,630,500 bushels will satisfy the actual food requirements for the year. In addition, seed for, say, 150,000 acres must be provided; this, at 2 bushels per acre (300,000 bushels), brings up the total quantity required by the colony to 4,930,500 bushels. But the wheat crop for 1895 was only 3,613,037 bushels, to which may be added the quantity grown by Maoris (estimated at 280,075 bushels) and the amount of the 1894 crop still held by farmers (259,747 bushels), making a total of 4,152,859 bushels in the colony. From this it would appear that, unless large stocks are held by grain merchants, so far from there being this year any surplus available for export, the colony may actually have to import more than half a million bushels of wheat (or an equivalent in flour) to supply the estimated demand.

While the wheat crop has fallen from 4,891,695 bushels in 1894 to 3,613,037 bushels this year, it is worthy of special notice that the "quantity of last year's crop remaining on hand" with the farmers has likewise fallen from 557,315 to 259,747 bushels, a decrease of 297,568 bushels, or at the rate of more than 53 per cent.

Of 148,575 acres in wheat this year, there were no less than 107,352 acres in Canterbury and 31,653 acres in Otago. The area in wheat for Canterbury showed a decrease from 174,252 acres in 1894 to 107,352 acres in 1895, and of estimated produce from 3,407,842 bushels to 2,540,936 bushels. In Otago the land laid down in wheat in 1895 was about two-thirds of the quantity for 1894, the reduction being from 53,058 acres to 31,653 acres. The estimated yield fell from 1,161,672 bushels to 830,715 bushels.

The area under wheat, the estimated gross produce in bushels, and the average yield per acre for each of the last ten years are next shown. It will be noticed that the breadth of land laid down in wheat was nearly three times as great in 1892 as in 1895.

Year.	Land under Wheat.	Estimated Gross Produce.	Average Yield per Acre.
	Acres.	Bushels.	Bushels.
1886	173,891	4,242,285	24·40
1887	253,025	6,297,638	24·89
1888	357,359	9,424,059	26·37
1889	362,153	8,770,246	24·22
1890	335,861	8,448,506	25·15
1891	301,460	5,723,610	18·99
1892	402,273	10,257,738	25·50
1893	381,245	8,378,217	21·98
1894	242,737	4,891,695	20·15
1895	148,575	3,613,037	24·32

The following gives the area in wheat and the estimated produce for the Australian Colonies for the season of 1894:—

Colony.	Wheat-crop, 1894.		
	Acres.	Bushels.	Bushels per Acre.
Queensland	28,993	413,094	14·25
New South Wales	593,810	6,502,715	10·95
Victoria	1,469,359	15,255,200	10·38
South Australia	1,732,711	13,610,062	7·86
Western Australia..	42,673	520,198	12·19
Tasmania	55,312	833,771	15·07

The amount of wheat consumed or used up by the people in any year is estimated by deducting from the gross yield both the amount exported in that year and the quantity of seed required for the next crop. It is impossible, however, to give by this means an exact statement of the quantity needed for actual consumption, and that for two reasons: (1) The crop itself is an estimate, and the actual harvested yield may be either more or less; (2) the quantity retained in any one year may be very much in excess of local requirements, and the surplus may form part of the following year's exports, thus largely increasing the apparent amount retained for consumption one year and reducing it the next. It is thus clear that the results for any one year cannot by themselves be taken for the purpose of ascertaining the requirements of the people, and that even the average for a term of years will probably vary somewhat, as any year's results are added to or subtracted from the computation.

The total average consumption of wheat in New Zealand for the period 1877 to 1894, inclusive, estimated according to the foregoing method, was 8·34 bushels per head of population, including Maoris. From this has to be deducted the wheat required for seed purposes, estimated at, say, 2 bushels to the acre. The remainder, being the amount required for local consumption, averaged 7·34 bushels per head. The particulars for each year and the results for the whole period are here given:—

TABLE SHOWING THE AMOUNT OF WHEAT ANNUALLY RETAINED IN THE COLONY.

Year.	Produce (including Estimated Quantity of Maori-grown Wheat and Imports of Wheat and Flour).*	Exports of Wheat and Flour.*	Retained in the Colony.	Used as Seed at 2 Bushels per Acre.	Difference for Food-consumption.	Mean Population (including Maoris).	Proportion per Head retained.	
							For Food, &c.	Total retained
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Persons.	Bush.	Bush.
1877 ..	4,374,620	906,543	3,468,077	486,812	2,981,265	451,943	6·60	7·66
1878 ..	6,537,770	1,897,354	4,640,416	529,722	4,110,694	467,000	8·80	9·94
1879 ..	6,272,914	2,580,798	3,692,116	540,396	3,151,720	491,886	6·41	7·51
1880 ..	7,801,892	3,147,586	4,654,306	649,898	4,004,408	518,275	7·73	8·98
1881 ..	8,264,167	3,918,107	4,346,060	731,430	3,614,630	537,579	6·72	8·08
1882 ..	8,360,295	3,721,812	4,638,483	781,636	3,856,847	552,991	6·91	8·39
1883 ..	10,329,907	5,195,703	5,134,204	755,412	4,378,792	572,539	7·65	8·97
1884 ..	9,934,101	2,885,390	7,048,711	540,086	6,508,625	595,411	10·93	11·84
1885 ..	6,950,854	1,596,820	5,354,034	347,782	5,006,252	615,757	8·13	8·66
1886 ..	4,290,826	1,675,201	2,615,625	506,050	2,109,575	624,086	3·38	4·19
1887 ..	6,368,140	707,182	5,660,958	614,718	5,046,240	638,343	7·90	8·87
1888 ..	9,472,895	2,547,033	6,925,862	724,306	6,201,556	647,340	9·58	10·70
1889 ..	8,784,801	3,397,752	5,387,049	671,722	4,715,327	655,799	7·19	8·21
1890 ..	8,468,853	4,899,069	3,569,784	602,920	2,966,864	664,460	4·47	5·37
1891 ..	5,950,244	1,610,973	4,339,271	804,546	3,534,725	671,776	5·26	6·46
1892 ..	10,538,337	2,659,382	7,878,955	762,490	7,116,465	684,238	10·40	11·51
1893 ..	8,626,914	2,709,311	5,917,603	485,474	5,432,129	703,342	7·72	8·41
1894 ..	5,226,383	280,326	4,946,057	297,150	4,648,907	721,189	6·45	6·86
Totals and Averages	186,553,913	46,336,342	90,217,571	10,832,550	79,385,021	10,813,954	7·84	8·34

* In equivalent bushels of wheat.

As already pointed out, the result of the calculation is believed to be at least one bushel per head too high.

The difficulty of correctly computing the consumption of breadstuffs is shown by the great differences in the estimates arrived at.

The average quantity required per head of the population (exclusive of that used for seed) has been estimated by Mr. Coghlan at 6·4 bushels for New South Wales, and by the late Mr. Hayter at 4½ to 5 bushels for Victoria.

The consumption of wheaten breadstuffs in New Zealand thus appears to be considerably in excess of that in Victoria, and is also in excess of the amount consumed per head in New South Wales and the other Australian Colonies.

The following is the average annual consumption of wheat per inhabitant in some of the principal countries of the world :—

United Kingdom	5·6 bushels.
Canada	6·6 „
France	8·1 „
Germany	3·0 „
Russia	2·1 „
Italy	5·4 „
United States	4·5 „

The English consumption during the last twenty-five years appears to have ranged from 5½ to 6 bushels per head of population. It is stated that the consumption in the United States is not now as high as 4½ bushels, the severe industrial depression of 1893 causing an increase in the use of cheaper grains. It is believed that Indian corn replaces at least one-fourth of the wheat that would otherwise be consumed.

The wheat crop of the world is given by the Department of Agriculture of the United States in the Statistician's report for March, 1895; the figures for four years are quoted here in a condensed form :—

WHEAT PRODUCE OF THE WORLD.

Countries.	1891.	1892.	1893.	1894.
	Bushels.	Bushels.	Bushels.	Bushels.
Europe	1,208,590,000	1,416,082,000	1,469,526,000	1,538,216,000
Asia	342,611,000	286,944,000	355,016,000	341,959,000
Africa	47,051,000	38,252,000	31,891,000	47,098,000
North America ..	688,814,000	578,748,000	446,387,000	515,488,000
South America ..	48,805,000	57,292,000	81,453,000	104,000,000
Australasia ..	32,840,000	35,963,000	41,161,000	42,035,000
Total ..	2,368,711,000	2,413,281,000	2,425,434,000	2,588,796,000

From the report above mentioned the following figures have been taken, showing the wheat produce of the various British possessions for the four years 1891–94 :—

WHEAT PRODUCED IN BRITISH POSSESSIONS.

Countries.	1891.	1892.	1893.	1894.
	Bushels.	Bushels.	Bushels.	Bushels.
Great Britain.. ..	77,016,000	62,621,000	52,466,000	62,568,000
Australasia	32,840,000	35,963,000	41,161,000	42,035,000
Canada	62,034,000	48,799,000	43,524,000	43,221,000
Cape Colony	2,727,000	3,000,000	3,891,000	3,098,000
Cyprus	2,000,000	2,000,000	2,000,000	2,000,000
India	256,704,000	206,640,000	268,539,000	258,459,000
Total	433,321,000	359,023,000	411,581,000	411,381,000

The crop of oats in 1895 was 10,221,393 bushels, against 12,153,068 bushels in 1894, showing a decrease of 1,931,675 bushels. Out of the total yield for 1895, only 807,075 bushels were grown in the North Island—the crop for the Middle Island being 9,414,318 bushels, of which 5,920,187 bushels were grown in Otago, and 3,327,998 bushels in Canterbury.

The extent of land in oats grown for grain in 1895 was 351,852 acres, against 376,646 acres in the preceding year. The breadth of land in oats sown for green food or hay was 167,160 acres, which is an increase of 37,056 acres on the figures for 1894.

The average yield per acre was lower in 1895 than in 1894, the figures being respectively 29·05 and 32·27 bushels.

The oat-crop for 1894 in the Australian Colonies was as follows:—

	Acres.	Bushels.	Average per Acre.
Queensland	606	12,095	19·96
New South Wales ..	34,148	701,804	20·55
Victoria	218,904	4,951,371	22·62
South Australia ..	13,619	172,605	12·67
Western Australia ..	2,571	47,597	18·51
Tasmania	33,755	837,720	24·82

There were 36,519 acres returned as under barley in 1895, the estimated crop being 1,000,612 bushels, an average yield per acre of 27·40 bushels. Last year the area under barley was only 28,857 acres, and the crop 724,653 bushels.

The estimated potato-crop was 139,869 tons from 25,339 acres, or an average yield per acre of 5·52 tons. In 1894 the crop was 126,540 tons from 21,121 acres.

A comparison of the gross yield of potatoes with the amount exported in each of the past twelve years shows that for the period 1883–94 an average of 597lb. a head was retained in the colony. Allowing for waste, pig-feed, and seed, the average amount retained for human consumption is found to be 449lb. a head. Particulars are given in the table annexed.

Year.	Produce (including estimated Quantity of Maori-grown Potatoes and Imports).	Quantity Exported.	Retained in the Colony.	Used for Seed at 12cwt. per Acre.	Pig-feed, &c., and Waste (estimated).	Difference for Food (Human Consumption).	Mean Population (including Maoris).	Proportion per Head retained.	
								For Food.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.		Lb.	Lb.
1883	157,555	10,151	147,404	20,551	15,718	111,135	572,539	435	577
1884	165,921	19,226	146,695	20,699	16,580	109,416	595,411	412	550
1885	176,228	14,036	162,192	22,784	17,610	121,798	615,757	443	590
1886	167,667	7,923	159,744	24,500	16,635	118,609	624,086	426	573
1887	187,687	15,688	171,999	23,093	18,757	130,149	638,343	457	604
1888	190,681	16,598	174,083	23,689	19,066	131,328	647,340	454	602
1889	186,295	21,609	164,686	26,236	18,628	119,822	655,799	409	563
1890	223,734	28,877	194,857	29,270	22,373	143,214	664,460	483	657
1891	242,123	35,610	206,513	26,015	24,212	156,286	671,776	521	689
1892	226,059	28,961	197,098	20,659	22,605	153,834	684,238	504	644
1893	168,185	5,804	162,381	22,321	16,818	123,242	703,342	393	517
1894	190,591	2,159	188,432	24,859	19,059	144,514	721,189	449	585
Totals ..	2,282,726	206,642	2,076,084	284,676	228,061	1,563,347	7,794,280	449	597

Turnips and rape form a most important crop in a sheep-breeding country such as New Zealand, and in 1892 the area of land under this crop amounted to no less than 422,359 acres. The returns for 1894 gave only 385,437 acres, while the returns for the present year show 385,788 acres as under this crop.

The cost of growing turnips sown broadcast and in drills is: Broadcast—Ploughing, 5s. 6d. per acre; harrowing, 3s. per acre; rolling, 1s. per acre; seed and sowing, 1s. 6d. per acre: total, 11s. per acre. Drill—Ploughing, 5s. 6d.; grubbing, 3s.; harrowing, 3s.; rolling, 1s.; drilling, 3s. 6d.; hand-hoeing, 10s.; horse-hoeing, 5s.; seed and sowing, 2s. 6d.; manure, 10s. to 15s.: total, £2 3s. 6d. to £2 8s. 6d.

778 acres were under hops in 1895, giving a total produce of 7,556cwt., as against 7,665cwt. from the same number of acres last year. Small as this area is, it is more than sufficient to supply local requirements, as the import of hops in 1894 amounted only to 529cwt., while the export reached 2,048cwt. In 1890 the total quantity used by the breweries in the colony amounted to 3,940cwt. Of the land under hops in 1895, 653 acres were in the Waimea County, and 98 in Collingwood, both in the Provincial District of Nelson.

The growing of tobacco does not progress in New Zealand. In 1889, 34 acres were being cultivated; in 1890, 25 acres; in 1891, 16 acres; in 1892, 6 acres; in 1893, 4 acres; in 1894, 4 acres; and in 1895, 5 acres, producing 1,599lb. of dried leaf.

The extent of land in garden was 10,263 acres, and in plantations of forest-trees 55,386 acres.

There were 21,401 acres in orchard in 1895, an increase of 313 acres on the area so returned in the previous year. The fruit-crop of the colony is supplemented by a considerable import from the Australian Colonies and Fiji.

Mr. W. J. Palmer, pomologist, remarks, in regard to the development of fruit-culture:—

> The first requisite to successful fruit-growing is that the grower should have a thorough knowledge of the kinds of fruit, and the varieties of those kinds best suited to the soil and climate of the locality in which he is settled. As in this sparsely-peopled and recently occupied country we have not the accumulated experience of past generations to guide us, it is obvious we can only obtain the necessary knowledge by experiment, and by experiment on so large a scale and so continuous as to be altogether beyond the means of the individual citizen, and therefore calling for the direct intervention of the State itself. Schools of horticulture, each with its experimental orchard, should be established throughout the colony in localities indicated by its varied climatic conditions. In these schools the lads and young men destined to make a living by fruit-culture could acquire a thorough practical knowledge of the most approved methods of treating the various diseases to which the trees are subject, of the insect and fungoid pests which infest the trees, and the means of successfully combating them. This is secondary only in importance to the actual growing of the fruit, and the proper handling, grading, packing, and preserving the ripe fruit for market. Such an institution, after a few years, would be self-supporting; the necessary labour would be found by the students, who would, of course, have to pay small fees in return for their tuition; and revenue would be derived from the sale of

fruit, and of trees for planting out. In addition, members might be admitted, as in the Royal Horticultural Society of England, by paying an annual subscription, the full value of which they would receive in the newest and most improved varieties of trees and plants, such as they could not procure otherwise, except by the costly process of importing from abroad.

Nor would schools of this sort be an innovation in principle, for the State of California, United States of America, already has them in a very complete form; Victoria, New South Wales, and this colony have their experimental farms, and Victoria has her schools of mines and travelling dairy. What these institutions do for the miner, the farmer, and dairyman, the schools of horticulture would do for the fruit-grower; and the objects to be gained by them are at least of equal importance to the State, for Nature has in the most unmistakable manner destined New Zealand to be pre-eminently a fruit-growing country, by the fertility of its soil, its varied temperature, and its unsurpassed climate.

Of the extent to which the industry may grow in a very short space of time California affords a striking example, her fruit-production already amounting annually to a value running into millions of pounds sterling; and New Zealand can produce, without artificial aid, almost everything that the former has to raise by the expensive agency of irrigation.

New Zealand is essentially suited for grazing purposes. Wherever there is light and moisture, English grasses thrive when the natural bush and fern are cleared off. In fact, the white clover gradually overcomes the fern; and, from the mildness of the winter season, there are few places where there is not some growth, even in the coldest months of the year. In all parts of the colony stock live, although in varying condition, without other food than such as they can pick up. Sown grass land, as might be expected, heads the list of cultivations.

In February, 1895, there were 8,829,717 acres under artificial grasses. Of these, 3,908,581 acres had been previously ploughed, presumably under grain or other crops, while 4,921,136 acres had not been ploughed. Much of the latter area was bush- or forest-land, sown down in grass after the timber had been wholly or partially burnt off.

Seeds are used much as in Great Britain, the following being a common mixture: Perennial ryegrass, 25lb. to 30lb. per acre; cocksfoot, 2lb.; alsyke, 2lb.; timothy, 3lb.; cowgrass, 2lb.; red clover, 2lb.; white clover, 2lb.; rape, 1lb.: total, 39lb. to 44lb. per acre. Pastures are renewed at intervals or from four to eight years, according to the nature of the land.

The following shows the acreage in sown grasses in the Australasian Colonies in 1894:—

	Acres.
Queensland	18,346
New South Wales	302,412
Victoria	242,762
South Australia	26,904
Western Australia (1891)	23,344
Tasmania	216,296
New Zealand (1894)	8,698,897

It will be observed that the acreage of land under sown grasses was more than ten times as great in New Zealand as in the whole of Australia and Tasmania. When compared in size with the colonies of Australia, New Zealand is relatively small—about one-thirtieth of their total area—but in respect of grazing capabilities the relative importance of this country is much greater. Australia is generally unsuitable, owing to conditions of climate, for the growth of English grasses, and the amount of feed produced by the natural grasses throughout the year is very much less per acre than is obtained from the sown grass lands in New Zealand; indeed, it may be said that the average productiveness of grass-land is about nine times as great here as in Australia, or that land in this colony covered with English grasses may be considered equal, for grazing purposes, to an area of Australian land about nine times as great.

The total quantity of grass-seed produced was, in 1895, returned at 898,403 bushels: of which 339,509 bushels were cocksfoot, 531,243 bushels ryegrass, and 27,651 bushels other kinds. The value of all the grass-seed is calculated to be about £134,760.

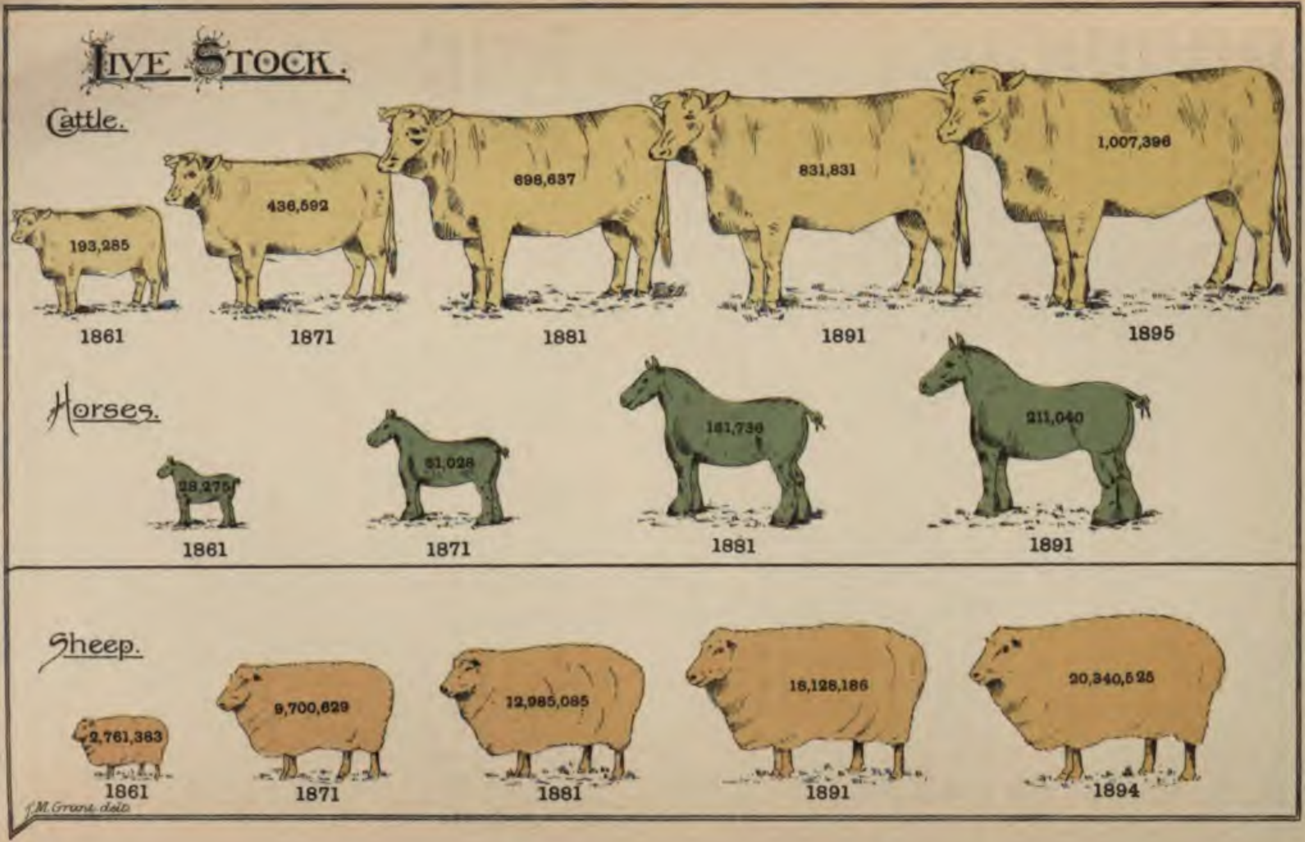
The total value of all agricultural produce, &c., for the current year is reckoned at about £3,472,606, made up as follows:—

	£
Grain and pulse	1,224,455
Root-crops	960,986
Hops and other crops	55,316
Hay and green forage (excluding grass)	545,913
Grass-seed	134,760
Garden and orchard produce	551,176
Total value of agricultural produce	£3,472,606

Animals and Produce.

Returns of sheep are sent in April of each year to the Agricultural Department, and cattle are enumerated by the collectors of agricultural statistics; but returns of other animals are obtained only when a census is taken. The number of each kind of live-stock, according to the returns from the European portion of the population, in the colony, in each of the census years 1886 and 1891 is given below:—

Live-stock.	Census, 1891.	Census, 1886.
Horses	211,040	187,382
Brood-mares (included in foregoing)	31,276	29,853
Asses and mules	348	297
Cattle (including calves)	788,919	853,358
Breeding-cows (included in foregoing)	280,711	279,136
Milch-cows (also included in breeding-cows)	206,906	Not specified.
Sheep (including lambs)	17,865,423	16,564,595
Breeding-ewes (included in foregoing)	7,371,429	6,457,355
Goats	9,055	10,220
Pigs	222,553	277,901
Poultry	1,790,070	1,679,021
Ostriches	179	..


LIVE STOCK.
Cattle.
193,285
1861
436,592
1871
696,637
1881
831,831
1891
1,007,396
1895
Horses.
28,275
1861
81,028
1871
161,736
1881
211,040
1891
Sheep.
2,761,383
1861
9,700,629
1871
12,985,085
1881
16,128,186
1891
20,340,525
1894
J.M. Grant delt

The above statement does not include the live-stock owned by Maoris. A census was taken in 1891 of the Native race, their stock and cultivations, about the time of the general census, but not of so elaborate a character. In this way the following numbers of stock owned by Maoris were ascertained: Sheep, 262,763; cattle, 42,912; pigs, 86,259; no statement of the horses, of which they have many, being given. The full numbers of sheep, cattle, and pigs in the colony were therefore,—

Sheep	18,128,186
Cattle	831,831
Pigs	308,812

The number of sheep in the colony on 30th April, 1894, according to returns made to the Department of Agriculture, was 20,230,829, and it is expected that the tables now being compiled will, when complete, show that the number in April of the present year exceeded twenty-one millions.

The flocks of the North Island increased from 4,925,253 sheep in the year 1885 to 9,169,352 in 1894, or at the rate of 46·29 per cent., while sheep in the Middle Island increased only from 9,621,548 to 11,061,477, or 13·02 per cent., in the same period. For the North Island the increase during the ten years was 4,244,099 sheep, and for the Middle Island only 1,439,929.

Figures for each year are given as illustrative of the remarkable progress of the North Island in comparison with that of the other.

SHEEP.

	North Island.	Middle Island.	Total.*
1885	4,925,253	9,621,548	14,546,801
1886	5,285,907	9,888,356	15,174,263
1887	5,506,485	9,649,141	15,155,626
1888	5,668,996	9,373,202	15,042,198
1889	5,990,244	9,433,084	15,423,328
1890	6,588,346	9,527,767	16,116,113
1891	7,159,927	9,593,825	16,753,752
1892	8,204,029	10,366,723	18,570,752
1893	8,685,361	10,695,008	19,380,369
1894	9,169,352	11,061,477	20,230,829

It has been estimated that the annual consumption of mutton in New Zealand is equivalent to 2·25 sheep per inhabitant, and that the number of sheep required in the present year for food will be about 1,653,750. (Maoris, for the purposes of this calculation, have been included.)

Two important advantages that sheep-farming has in New Zealand are mentioned by Mr. J. A. Johnstone in the Year-book for 1894. They are: (1) the low cost of the production of mutton, (2) the high percentage of natural increase. Respecting the first point, it has been proved beyond all doubt that, under ordinary conditions, the very choicest of mutton can be so produced as to pay the grower handsomely when sold at 2d. per pound for the carcase at the nearest shipping-port. To the British sheep-farmer this statement, of course, is valueless by itself; but, when we add that this mutton would cost the London butcher, delivered *ex* steamer at the dock, only 3½d. per pound, he will be able to realise in some measure what a wonderful grazing-country New Zealand is, and to understand how it is that settlers of the right stamp have done so well. Then, with regard to the high percentage of increase, there need only be cited a few average returns from well-known flocks to show what excellent lambings New Zealand farmers obtain under good management.

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* Excluding sheep on the Chatham Islands, which, at the census of 1891, numbered 75,679. If these be added the number in 1894 would be 20,306,508.

LAMBING RETURNS.—AVERAGES.

Locality.	Breed of Flock.	Breed of Rams.	Breed of Ewes.	No. of Ewes.	Percentage of Lambs.	Remarks.
North Island ..	Lincoln	Lincoln	Lincoln	7,517	81·04	Land merely surface-sown in English-grass pasture.
" ..	"	"	"	5,301	85·05	
" ..	"	"	⅞ Lincoln	12,177	100·00	
" ..	Romney	Romney	Romney	1,141	96·17	
" ..	Lincoln	Southd'n	Lincoln	2,033	94·71	
Middle Island ..	Merino	Merino	Merino	14,765	75·36	Mountainous country in n'tive past're, unimproved.
" ..	"	B. Leic'str	"	4,235	88·94	
" ..	Cross-bred	"	Cross-bred	8,624	80·82	In English-grass pasture.
" ..	Half-bred	"	Half-bred	2,747	82·79	
" ..	B. Leic'str	"	B. Leic'str	778	90·77	
" ..	Lincoln	Lincoln	Lincoln	452	88·08	
" ..	R. Marsh	R. Marsh	R. Marsh	253	111·46	
" ..	E. Leic'str	E. Leic'str	E. Leic'str	464	93·34	
" ..	Shropsh're	Shropsh're	Shropsh're	168	97·41	
" ..	Southd'n	Southd'n	Southd'n	114	96·87	

The above returns are fair average ones, but much higher might have been shown if exceptional cases had been selected.

As showing the actual cost of managing two large estates in New Zealand (Middle Island), No. 1 carrying 20,000 cross-bred sheep, and No. 2 carrying 40,000, the subjoined table may prove interesting:—

	No. 1. Per Head.		No. 2. Per Head.	
	s.	d.	s.	d.
Cost of shearing, including scouring and putting wool f.o.b.	0	6·5	0	6·3
Management, shepherding, dipping, &c.	0	10	0	9·6
Cost of providing special feed (turnips, green feed, chaff, &c.)	1	1	1	6·3
Cost of renewing English grass ..	2	0	1	5
Total per head	4	5·5	4	3·2

With the agricultural statistics of 1895, particulars as to the number of cattle were also obtained. The totals for provincial districts are as follow :—

Provincial Districts.	Cattle (including Calves).	Breeding-cows (included in foregoing).	Dairy Cows included in foregoing).
Auckland	258,872	82,991	59,410
Taranaki	151,465	52,673	49,450
Hawke's Bay ..	92,705	23,545	11,594
Wellington	185,544	63,377	44,193
Marlborough ..	9,995	3,831	3,365
Nelson	34,842	10,449	9,986
Westland	8,269	2,614	2,285
Canterbury	81,199	32,275	29,500
Otago	141,143	59,067	47,357
Totals ..	964,034	330,822	257,140

The returns show that there were 203 silos, or ensilage stacks, in the colony to provide winter food for the cattle.

Out of a total of 964,034 cattle in the colony, the North Island is shown to have had 688,586, or 71·43 per cent.; while the Middle Island had only 275,448, or 28·57 per cent. Similarly, the dairy cows in the North numbered 164,647, and those in the Middle Island 92,493.

Thus, the North Island, while fast overtaking the Middle Island in the matter of sheep-breeding, contains at the same time many more dairy cows and other cattle.

Dairy or milch cows were previously enumerated at the census of 1891, when the number was found to be 206,906; the returns for 1895, therefore, show an increase since 1891 of 50,234 head, or rather more than 24 per cent. Cattle of all ages increased during the same period by 175,115 head, or 22 per cent., and breeding-cows by 50,111, or 18 per cent.

The following gives the number of the principal kinds of live-stock in the several Australasian Colonies for the year 1894 :—

	Sheep.	Cattle.	Horses.
Queensland	18,697,015	6,693,200	429,734
New South Wales ..	56,980,688	2,155,500	481,399
Victoria	13,098,725	1,817,291	463,903
South Australia ..	7,267,642	423,600	187,666
Western Australia ..	2,220,642	173,747	45,747
Tasmania	1,535,047	169,141	31,587
New Zealand ..	*20,306,508 (1894)	1,007,396 (1895)	†211,040 (1891)

New Zealand thus takes second place in order for number of sheep, and fourth for the number of her cattle.

The next statement, based on returns published by the Statistician of the Department of Agriculture of the United States, shows the approximate numbers of cattle, horses, sheep, and pigs in the civilised world :—

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* Including those owned by Maoris and those in the Chatham Islands.

† Excluding those owned by Maoris.

	Cattle.	Horses.	Sheep.	Pigs.
North America ..	57,887,438	17,717.139	51,292,797	48,059,045
South America ..	57,610,183	5,486,036	96,242,137	2,723,516
Europe	104,430,093	36,483,400	187,144,203	49,164,841
Asia*	60,846,904	4,279,241	39,922,366	488,937
Africa..	6,094,883	1,238,574	35,589,208	546,909
Australasia	11,872,360	1,786,644	124,645,606	1,156.325
Oceania	131,796	4,066	12,607	33,151
Totals ..	298,873,657	66,995,100	534,848,924	102,172,224

The numbers owned in the United Kingdom, her colonies and possessions, are:—

	Cattle.	Horses.	Sheep.	Pigs.
United Kingdom ..	11,519,417	2,067,549	33,642,808	3,265,898
British India and Ceylon	53,766,050	1,055,385	30,074,606	486,700
Australasia	11,872,360	1,786,644	124,645,606	1,156,325
Canada	4,117,799	1,231,831	3,513,419	1,732,313
Cape of Good Hope, Natal, and Basutoland	3,226,115	587,418	17,665,352	333,866
Other British Possessions	188,332	138,703	959,696	30,285
Totals ..	84,690,073	6,867,530	210,501,487	7,005,387

Butter has always held an important position among the productions of the New Zealand small-farmer. Made by different persons and in different ways, it has not been generally suitable for the requirements of the English market, although considerable quantities have been exported both to Australia and to the United Kingdom; but the success attending the efforts made to produce butter of uniform high quality in dairy factories, and the fairly remunerative prices realised for such butter in England, have caused great attention to be given to co-operative dairying for the purpose of supplying produce for the English market.

It is only in census years that any information is obtained of the quantity of butter and cheese annually produced in the colony, and the returns given by farmers must be considered as estimates only, as most of them do not keep accounts of their productions.

The following are the results of the returns made in the census years mentioned. The numbers represent the quantities produced in the preceding years:—

ANNUAL PRODUCTION OF

Census Year.	Cheese. Lb.	Butter. Lb.
1881	3,178,694	8,453,815
1886	4,594,795	12,170,964
1891	6,975,698	16,310,012

The figures for 1891 include 1,969,759lb. of butter and 4,390,400lb. of cheese made in factories. The output of the factories rose in 1894 to 6,722,303lb. of butter, and 8,167,500lb. of cheese, according to special returns compiled by the Department of Agriculture.

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* Includes only British India and Ceylon; French East Indies; Java, Hongkong Japan, Russia in Asia (Caucasia and Trans-Caucasia), and Cyprus.

The importance of this industry to New Zealand has caused the Government to appoint a chief dairy expert, and instructors in dairying who visit factories and give lectures and addresses on the benefits of co-operative dairying, the making of cheese and butter, and subjects relating thereto. Particulars of this industry will be found in a separate article further on.

The growth of our export trade of butter and cheese with the United Kingdom, which must be regarded as the principal market, is shown in the table on page 137.

MINING.

The natural mineral resources of New Zealand are very great, and have exercised in the past a most important influence on the development and progress of the colony. Gold to the value of £50,188,838 was obtained prior to the 31st December, 1894. In 1894 the value of the produce was £887,839. In the earlier years the gold was obtained from alluvial diggings, but at the present time it is mostly taken from gold-bearing quartz, which is distributed widely through several parts of the colony, and thus there is a much better prospect of the permanency of this industry than alluvial diggings could give. The amount of silver extracted to the end of 1894 amounted to only £160,584 in value, but recent discoveries of ore give promise of large production in the future. Of other minerals, the product to the same date amounts to £12,420,230, of which kauri-gum yielded £7,264,763, and coal, with coke, £4,921,802. The following gives the quantities and values of precious metals and minerals obtained during the year 1894, and the total value of mining produce since 1853 :—

	1894.		Total Value since 1853.
	Oz.	£	£
Gold	221,615	887,839	
Silver	54,177	6,697	
	275,792	894,536	50,349,422
	Tons.		
Copper-ore ..	..	..	17,866
Chrome-ore ..	..	..	37,367
Antimony-ore ..	44	761	50,268
Manganese-ore ..	534	1,156	57,263
Hæmatite-ore ..	..	..	226
Mixed minerals ..	25	353	70,675
Coal	719,546	395,709	4,897,999
Coke (exported) ..	107	160	23,803
Kauri-gum ..	8,338	404,567	7,264,763
		£1,697,242	£62,769,652

Gold.

The following table shows the quantity and value of gold entered for duty for exportation from the colony up to the 31st March, 1895;

are also internal training-walls constructed. These works have so far been perfectly successful; they have really done somewhat more than was expected of them. Prior to their initiation there was seldom more than 10ft. of water on the bar, and the channel was tortuous and constantly changing its position; now the channel is straight and permanent, and for the most time the channel has 25½ft. at high-water springs, and 8ft. to 16ft. at low-water springs. The average depth at high-water on the bar during the year 1892 was 18ft. 10in., in 1893 19ft. 7in, and in 1894, 20ft. 7in.

The progressive increase in the output of coal from 1878 to the end of 1894 is shown below:—

Year.	Raised in the Colony.		Imported.	Total raised in the Colony, and imported per Annum.	Exported	Total Consumption of Coal within the Colony.	Yearly increase in Consumption within the Colony.
	Total.	Yearly Increase.					
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1878 ..	162,218	..	174,148	336,366	3,921	332,445	..
1879 ..	231,218	69,000	158,076	389,294	7,195	382,099	49,654
1880 ..	299,923	68,705	123,298	423,221	7,021	416,200	34,101
1881 ..	337,262	37,339	129,962	467,224	6,626	460,598	44,398
1882 ..	378,272	41,010	129,582	507,854	4,245	503,609	43,011
1883 ..	421,764	43,492	123,540	545,304	7,172	538,132	34,523
1884 ..	480,831	59,067	148,444	629,275	6,354	622,921	84,789
1885 ..	511,063	30,232	130,202	641,265	2,371	638,894	15,973
1886 ..	534,353	23,290	119,873	654,226	2,862	651,364	12,470
1887 ..	558,620	24,267	107,230	665,850	12,951	652,899	1,535
1888 ..	613,895	55,275	101,341	715,236	27,678	687,558	34,659
1889 ..	586,445	- 27,450*	128,063	714,508	39,290	675,218	12,340
1890 ..	637,397	50,952	110,939	748,336	33,404	714,932	39,714
1891 ..	668,794	31,397	125,318	794,112	29,093	764,019	49,087
1892 ..	673,315	4,521	125,453	798,768	28,169	770,599	6,580
1893 ..	691,548	18,233	117,444	808,992	24,288	784,704	14,105
1894 ..	719,546	27,938	112,961	832,507	25,449	807,058	22,354

It will be seen from the above that there has been a steady increase in the output of coal from the mines in the colony, year after year, since records have been kept by the Mines Department—with the exception of 1889. The yearly increase in output is principally due to the growing demand for consumption within the colony. During a period of sixteen years the consumption of coal in New Zealand has increased to the extent of 474,613 tons per annum, showing that new industries are quickly springing up, requiring fuel for generating motive-power.

The total output of the coal-mines up to 31st December, 1894, was about 9,216,395 tons. The quantities produced in each district are shown on the next page.

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* Decrease.

Name of District.	Output of Coal.		Increase or decrease.	Approximate total Output of Coal up to the 31st December, 1894.
	1893.	1894.		
	Tons.	Tons.	Tons.	Tons.
Kawakawa	11,307	23,504	+12,197	822,572
Whangarei, Kamo, Ngunguru, and Whauwhau	23,379	16,627	− 6,752	315,790
Waikato	57,251	55,601	− 1,650	767,275
Mokau	781	522	− 259	8,027
Pelorus	..	..	..	711
West Wanganui	2,471	2,173	− 298	46,739
Westport	227,178	231,472	+ 4,294	1,858,593
Reefton	3,904	3,982	+ 78	59,994
Greymouth	138,179	148,245	+10,066	1,986,698
Malvern	10,700	8,651	+ 2,049	304,780
Timaru	1,220	2,105	+ 885	10,218
Otago	174,236	185,032	+10,796	2,735,860
Southland	40,942	41,632	+ 690	299,143
Totals	691,548	719,546	+27,998	9,216,395

As regards the quality of the coal, it cannot be surpassed. The late Sir John Coode, in his presidential address to the Institute of Civil Engineers, London, stated : "The bituminous coal found on the west coast of the Middle Island is declared by engineers to be fully equal, if not superior, to the best description from any part of the world." The quantity of each class of coal produced in 1893 and 1894 was :—

Class of Coal.	Output of Coal.		Increase or decrease.	Approximate total Output of Coal up to the 31st December, 1894.
	1893.	1894.		
	Tons.	Tons.	Tons.	Tons.
Bituminous	380,901	418,589	+37,688	4,738,067
Pitch	131,071	102,389	−28,682	1,435,974
Brown	156,154	170,815	+14,661	2,751,793
Lignite	23,422	27,753	+ 4,331	290,561
Totals	691,548	719,546	+27,998	9,216,395

The following table, constructed from "Laboratory Reports of the Geological Survey" (Hector) gives the composition of samples of New Zealand coals, freshly taken from the principal mines :—

Number.	Description.	Locality.	Analysis.				Evaporative Power.*	
			Fixed Carbon.	Hydro-carbon.	Water.	Ash.	1.	2.
1	Anthracite	Acheron, Canterbury	84·12	1·96	1·80	12·12	10·93	18·50
2	Bituminous	Coalbrookdale	74·83	20·50	1·16	3·51	9·70	16·45
3	"	"	70·00	22·15	2·52	5·33	9·10	15·40
4	"	Banbury	69·97	25·71	0·99	3·33	9·09	15·38
5	Altered brown coal	Malvern Hills	68·54	19·89	4·15	7·42	8·27	12·50
6	Bituminous	Tyneside	65·59	29·18	0·82	4·41	8·52	13·55
7	Glance coal	Rakaia Gorge	64·51	21·27	6·76	7·46	8·30	13·20
8	Bituminous	Wallsend	62·87	31·64	1·66	3·83	8·17	13·82
9	"	Grey River	62·37	29·44	1·99	6·20	8·01	13·22
10	Pitch coal	Kawakawa	61·16	28·00	2·51	8·33	7·95	12·55
11	Bituminous	Preservation Inlet	60·88	28·60	4·33	6·19	7·91	12·80
12	Pitch coal	Blackball, Grey River	60·20	29·97	8·01	1·82	7·82	12·20
13	Bituminous	Mokihinui	59·75	32·14	3·97	4·14	7·76	11·80
14	"	Coalpit Heath	58·81	38·98	1·02	1·19	7·64	12·96
15	"	Mokihinui	57·92	34·94	3·96	3·18	7·50	12·75
16	"	Brunner Mine	56·62	35·68	1·59	6·11	7·36	12·46
17	"	"	56·21	37·73	1·50	4·56	7·30	12·36
18	"	Westport	56·01	37·17	2·60	4·22	7·28	12·30
19	"	Mokihinui	55·59	38·86	3·16	2·39	7·20	12·22
20	"	Brunner	54·16	35·85	2·50	7·49	7·04	11·91
21	Altered brown coal	Malvern Hills	53·29	32·04	12·65	2·02	6·92	11·50
22	Bituminous	Wallsend	53·10	35·47	1·41	10·02	6·90	11·68
23	"	Otamataura Creek	52·89	36·63	2·19	8·29	6·90	11·70
24	"	Near Cape Farewell	51·37	38·72	4·38	5·53	6·31	11·60
25	Pitch coal	Kawakawa	50·15	42·63	4·18	3·04	6·50	11·80
26	Glance coal	Whangarei	50·11	38·68	8·01	3·20	6·50	11·75
27	Pitch coal	Kamo	50·01	37·69	9·61	2·69	6·50	11·17
28	Brown coal	Malvern Hills	49·99	35·42	11·79	2·80	6·49	10·90
29	"	Fernhill	49·95	36·95	12·00	1·10	6·49	10·99
30	"	Allandale	47·31	34·26	12·41	6·02	6·15	10·96
31	"	Kaitangata	46·48	33·48	14·66	5·38	6·04	10·22
32	"	Shag Point	46·21	32·65	16·02	5·12	6·00	10·16
33	"	Homebush	44·92	36·00	15·83	3·25	5·83	9·87
34	Pitch coal	Hikurangi, Whangarei	44·50	47·00	5·99	2·51	5·78	9·79
35	Brown coal	Hokonui	44·28	38·22	16·50	1·00	5·75	9·77
36	"	Kaitangata	44·11	38·32	15·44	2·13	5·74	9·96
37	"	Nightcaps	43·62	33·68	18·33	4·37	5.67	9·59
38	Pitch coal	Shag Point	43·19	30·05	15·82	10·94	5·61	9·52
39	Brown coal	Springfield	42·68	33·66	18·65	5·01	5·55	9·38
40	"	Orepuki	42·64	36·26	14·44	6·66	5·54	9·38
41	"	Kaitangata	38·29	32·43	17·50	11·78	4·87	8·32
42	"	Shag Point	35·76	30·86	13·22	20·16	4·64	7·85
43	"	Allandale	34·72	41·43	18·99	4·86	4·51	7·63
44	Pitch coal	Grey River	34·72	56·48	6·20	2·60	4·51	7·63
		FOR COMPARISON.						
	Newcastle, N.S.W.	Best	58·33	34·17	1·83	5·67	7·50	12·82
	"	Worst	53·34	26·66	3·33	16·67	6·90	11·72

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*The second column headed "Evaporative Power" is obtained by the use of a multiple computed from the results of Professor Liversedge's experiments upon the coals of New South Wales. The multiple used for the first column is the one which has long been generally used for computing the evaporative power of coals; but, to prevent any unfair and prejudicial comparison of our coals with those of New South Wales, the second column is given.

MANUFACTORIES, ETC.

Statistics of manufactories or works are taken every five years only, at the time of the census. The number of industries returned in 1891—2,570—shows an increase on the number—2,268—in 1886, but the rate of increase—13·32 per cent.—was not so large as might have been expected. Between 1881 and 1886 the industries returned increased from 1,643 to 2,268, or at the rate of 38 per cent. Gold-quartz-mining and hydraulic mining-works, numbering 209, are included in the above; 95 collieries are also included, with 2 antimony mines and 1 manganese, besides 9 building-stone quarries.

To include mining works among manufactories may appear strange at first, but the Census Act requires returns to be furnished for such works, and they have machinery and plant which must be included in any account of the machinery in use within the colony.

The remarks of the Registrar-General in the report on the census of 1886 as to what is included in the returns are reprinted, as again applicable: "There is difficulty in defining what works should be included and what omitted. For example, some of the furniture factories consist of large workshops in rear of shops, in which several hands are employed in making furniture; but there are numerous cabinetmakers who employ one or two hands in making furniture, but whose works can hardly be classed as manufactories. There are many industries in a similar condition, so that no hard-and-fast rule can be laid down; otherwise many industries that are in the aggregate of considerable magnitude, and of growing importance, would have to be omitted, or the table filled up with the enumeration of what are in reality retail businesses combined with the doing of a limited amount of work on the premises, either by way of repairs or as new work. Consequently, much discretion has to be exercised in the selection for the returns, possibly causing some little roughness in the result. Much additional work to that given is no doubt being performed by these minor industries. Some small industries have been given on account of their possessing a special character, or of being the germ of what may grow to some importance."

The hands and horse-power employed were—

	Hands employed.		Horse-power employed.
	Males.	Females.	
Census, 1881	16,599	1,399	13,601
" 1886	23,161	2,494	19,315
" 1891	26,911	2,969	33,392

Here the male hands employed are shown to have increased by 10,312 or 62·12 per cent. in ten years, and by 3,750 or 16·19 per cent. in the period 1886–91. The increase of female hands is much greater, being 112·22 per cent. for ten years, 1881–91, and for the quinquennium 1886–91, 19·05 per cent.

The increase in horse-power is 145·51 per cent. for 1881–91, and 72·88 per cent. for 1886–91.

At the census of 1891 an attempt was made for the first time to obtain information as to the wages paid in those factories or large works supplying wholesale orders, and making use of machinery and plant, which are dealt with in the industrial returns. The amount for the year 1890 was £2,106,860 paid to males, and £102,999 to females, of all ages. The total value of materials operated upon was £3,471,767, so far as returned. The deficiency is not considered to be such as very materially to affect the figures given. The annual value of the manufactures and produce was obtained in 1886 as well as in 1891, and a comparison is consequently possible:—

	Annual Value of Manufactures and Produce.
	£
Census, 1891	9,422,146
„ 1886	7,436,649
Increase	1,985,497

or 26·70 per cent.

It will be observed that while the number of industries increased between 1886 and 1891 by only 13·32 per cent., as previously stated, the proportionate increase on the actual result of the work, as shown by the value of the output, was at the higher rate of 26·70 per cent. The hands increased at the rate of 16·19 per cent. for males, and 19·05 per cent. for females.

The approximate value of the land, buildings, machinery, and plant used in the manufactories or works can be compared for four census-periods:—

	Value of Land and Buildings used for Manufactories or Works.	Centesimal Increase or Decrease.	Value of Machinery and Plant used for Manufactories or Works.	Centesimal Increase.
	£		£	
Census, 1878 ..	1,761,694		1,289,378	
		13·15		25 03
„ 1881 ..	1,993,330		1,612,141	
		46·98		71·65
„ 1886 ..	2,929,828		2,767,289	
		− 5·57		10·28
„ 1891 ..	2,775,277		3,051,699	

The value of the lands used for mining is not included in the above figures, and the value of Crown lands has been omitted throughout.

The order of the provincial districts, arranged according to the number of industries belonging to each, is as under:—

	Number of Industries including Gold-quartz-mining Works, Collieries, &c.	Number of Industries excluding Gold-quartz-mining Works, Collieries, &c.
Otago	705	541
Auckland	650	577
Canterbury	386	380
Wellington	333	333
Nelson	204	142
Hawke's Bay	85	85
Marlborough	78	77
Taranaki	68	68
Westland	61	51

The values of the manufactures for the provincial districts were respectively as follows:—

	Value of Manufactures including Output of Gold-quartz-mining Works, Collieries, &c.	Value of Manufactures excluding Output of Gold-quartz-mining Works, Collieries, &c.
	£	£
Auckland	2,396,060	2,184,401
Otago	2,237,246	2,078,365
Canterbury	2,061,921	2,056,412
Wellington	1,412,465	1,412,465
Hawke's Bay	525,394	525,394
Nelson	394,481	146,020
Marlborough	168,814	161,714
Taranaki	155,772	155,772
Westland	69,993	53,294

The following shows the most important industries, arranged according to value of manufactures or produce:—

	Total Value of all Manufactures or Produce, including Repairs.
	£
Meat-freezing, -preserving, and boiling-down works	1,464,659
Tanning, fellmongering, and wool-scouring establishments	1,026,349
Grain-mills	991,812
Sawmills	832,959
Boot-and-shoe factories	403,736
Iron- and brass-foundries, boiler-making, machinists, and millwrights	403,635
Printing establishments	354,559
Breweries	300,508
Collieries	279,777
Woollen-mills	279,175
Gold-mining, quartz-mining and -crushing works	278,893
Flax-mills	234,266
Gasworks	178,947
Clothing-factories	166,579*
Soap-and-candle works	155,714
Cheese- and butter-factories	150,957
Agricultural-implement factories	144,472
Coach-building and -painting works	139,660
Furniture-factories	131,314
Biscuit-factories	127,147
Other industries, in which the value of manufactures was under £100,000	1,377,028
Total	£9,422,146

The order of the principal industries, arranged according to the number of hands employed, was:—

	No. of Hands.
Sawmills	3,266
Flax-mills	3,204
Printing establishments	2,569
Gold-mining, quartz-mining and -crushing works	1,971
Boot-and-shoe factories	1,943
Iron- and brass-foundries, boiler-making, machinists, and millwrights	1,787
Collieries	1,655

	No. of Hands.
Meat-freezing, -preserving, and boiling-down works	1,568
Clothing-factories	1,290
Tanning, fellmongering, and wool-scouring establishments	1,196
Woollen-mills	1,175
Other industries	8,256
Total	29,880

The principal industries returned at the census of 1891, and particulars relating thereto, are given in detail in the following table:—

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* Returns unsatisfactory.

Nature of Industry.	Total Number of Industries.	Number of Hands employed.			Wages paid.			Amount of Horse-power employed.	Value of all Manufactures or Produce (including Repairs) for the Year 1890.	Approximate Value of Land, Buildings, Machinery, and Plant.
		Males.	Females.	Total.	To Males.	To Females.	Total.			
					£	£	£		£	£
Printing, &c., establishments	142	2,373	196	2,569	207,067	7,118	214,185	328	354,559	341,683
Machines, tools, and implements	36	526	2	528	45,246	41	45,287	148	144,472	73,478
Coach-building and -painting	108	675	3	678	52,526	75	52,601	94	139,660	96,225
Tanning, fellmongering, and wool-scouring	104	1,190	6	1,196	92,166	276	92,442	474	1,026,349	153,592
Ship- and boat-building	37	145	..	145	10,831	..	10,831	28	35,847	10,172
Sail- and oilskin-factories	32	68	56	124	4,909	1,426	6,335	..	31,083	16,799
Furniture-factories	94	551	34	585	41,392	1,351	42,743	105	131,314	96,543
Chemical-works	8	55	..	55	5,754	..	5,754	65	41,568	23,766
Woollen-mills	8	602	573	1,175	52,250	26,790	79,040	930	279,175	259,955
Clothing-factories	19	229	1,061	1,290	19,489	33,265	52,754	7	166,579	59,735
Hat- and cap-factories	16	51	61	112	4,138	2,138	6,276	..	21,628	26,005
Boot- and shoe-factories	47	1,475	468	1,943	107,040	17,950	124,990	46	403,736	82,137
Rope- and twine-works	24	222	..	222	13,658	..	13,658	129	76,711	36,086
Flax-mills	177	3,196	8	3,204	116,168	..	116,168	1,994	234,266	146,792
Meat-preserving, -freezing, and boiling-down works	43	1,561	7	1,568	138,312	147	138,459	5,112	1,464,659	476,151
Bacon-curing establishments	33	83	1	84	6,671	25	6,696	7	83,435	14,180
Cheese- and butter-factories	74	218	51	269	13,800	1,128	14,928	387	150,957	100,453
Grain-mills	129	499	..	499	52,384	..	52,384	2,906	991,812	391,828
Biscuit-factories	22	284	47	331	16,150	1,049	17,199	134	127,147	48,960
Fruit-preserving and jam-making works	15	74	43	117	3,781	961	4,742	33	27,255	10,042
Breweries	102	476	..	476	54,825	..	54,825	409	300,508	236,825
Malthouses	27	87	..	87	7,875	..	7,875	47	80,341	42,442
Carried forward	1,297	14,640	2,617	17,257	1,066,432	93,740	1,160,172	13,383	6,313,061	2,743,849

INDUSTRIES TABLE—*continued.*

Nature of Industry.	Total Number of Industries.	Number of Hands employed.			Wages paid.			Amount of Horse-power employed.	Value of all Manufactures or Produce (including Repairs) for the Year 1890.	Approximate Value of Land, Buildings, Machinery, and Plant.
		Males.	Females.	Total.	To Males.	To Females.	Total.			
					£	£	£		£	£
Brought forward	1,297	14,640	2,617	17,257	1,066,432	93,740	1,160,172	13,383	6,313,061	2,743,849
Aërated-water factories	112	253	8	261	16,982	39	17,021	155	91,691	73,147
Coffee-and-spice works	17	79	2	81	6,512	50	6,562	93	64,024	30,850
Soap-and-candle works	19	201	8	209	21,194	200	21,394	259	155,714	74,443
Sawmills	243	3,260	6	3,266	271,783	31	271,814	4,637	832,959	500,272
Chaff-cutting establishments	63	203	2	205	7,260	70	7,330	269	63,236	36,300
Gasworks	27	249	..	249	31,700	..	31,700	117	178,947	730,490
Brick-, tile-, and pottery- works	106	484	10	494	24,938	252	25,190	459	56,830	119,780
Iron and brass foundries	79	1,785	2	1,787	157,245	27	157,272	954	403,685	268,887
Spouting-and-ridging works	12	100	..	100	7,981	..	7,981	25	33,140	29,670
Gold- and quartz-mining works..	135	1,971	..	1,971	183,582	..	183,582	2,656	278,893	241,715
Hydraulic gold-mining and gold-dredging ..	74	495	..	495	32,904	..	32,904	7,728	73,713	154,270
Collieries	95	1,655	..	1,655	173,538	..	173,538	1,185	279,777	155,671
Other industries	291	1,536	314	1,850	104,809	8,590	113,399	1,472	596,526	667,632
Totals	2,570	26,911	2,969	29,880	2,106,860	102,999	2,209,859	33,392	9,422,146	5,826,976

The Government Printing Office and the Railway workshops have not been included in making up the preceding table (and indeed the information was not all obtained). This is in accordance with the practice observed at previous censuses in New Zealand, but is open to question, and it has, at least, the disadvantage of disturbing comparisons with other colonies where such Government establishments are included.

LAW AND CRIME.

Civil Cases.

Sittings of the Supreme Court are held for trial of civil cases at Auckland, Gisborne, New Plymouth, Napier, Wellington, and Wanganui, in the North Island; and at Blenheim, Nelson, Hokitika, Christchurch, Timaru, Oamaru, Dunedin, and Invercargill, in the Middle Island.

The number of writs of summons issued in the Supreme Court in 1893 was 741, against 717 in 1892, and 744 in 1891. The number of civil cases tried increased from 129 in 1892 to 156 in 1893. Of these, 16 were tried before common juries, 19 by special jury, and 121 by Judge without jury. The total of amounts for which judgments were recorded in 1893 was £87,301. There were 89 writs of execution issued during the year.

Eighty-seven cases were commenced at sixteen District Courts in 1893. Nineteen of these cases were tried before juries, and 39 before a Judge only, making a total of 58 cases tried. Sixteen cases lapsed or were discontinued, and 9 remained pending. The total of amounts sued for was £11,195, and judgments were recorded for £2,389. Before the Magistrates' Courts 21,142 cases were tried, against 18,803 in 1892; the aggregate sum sued for being £290,680, and the total for which judgment was given £140,306.

Bankruptcy.

The petitions in bankruptcy during 1893 numbered 484, of which 443 were made by debtors and 41 by creditors. This number is the lowest for eight years.

The following gives the number of petitions, the total amount of the unsecured assets, the amount of debts proved, and the amount paid in dividends and preferential claims for the past eight years :—

Year.	No. of Petitions in Bankruptcy.	Debtors' Statements of Assets, excluding Amounts secured to Creditors.	Amounts realised by Official Assignees.	Amount of Debts proved.	Amounts paid in Dividends and Preferential Claims.
		£	£	£	£
1886 ..	1,089	415,953	128,370	566,291	102,966
1887 ..	1,036	311,745	135,633	503,759	109,255
1888 ..	881	252,322	98,213	571,741	79,843
1889 ..	724	441,874	187,048	755,165	95,032
1890 ..	652	262,733	112,951	381,124	122,276
1891 ..	605	141,970	84,341	302,712	72,571
1892 ..	507	122,049	66,497	238,953	43,661
1893 ..	484	111,483	68,843	464,273	37,721

A special article on the present bankruptcy law of New Zealand was printed in the Year-book of 1894. Reference is made in it to a mode of private assignment which has come into such frequent use as to prevent conclusions being drawn from a comparison of the figures above given.

Of the bankruptcies in 1893, in 13 cases the liabilities were under £50; in 95, from £50 to £100; in 158, from £100 to £250; in 99, from £250 to £500; in 57, from £500 to £1,000; in 42, from £1,000 to £2,000; in 10, from £2,000 to £5,000; and in 4, £5,000 and upwards.

Divorce.

The petitions in 1893 under "The Divorce and Matrimonial Causes Act, 1867," were 43 in number—5 more than in 1892: 34 were for dissolution of marriage, and 9 for judicial separation; 25 decrees for dissolution of marriage were granted. The proceedings under the Act for the past seven years were as follows:—

Year.	Petitions for		Decrees for	
	Dissolution of Marriage.	Judicial Separation.	Dissolution of Marriage.	Judicial Separation.
1887	26	6	16	1
1888	35	3	32	..
1889	26	7	17	1
1890	24	8	21	3
1891	31	5	20	3
1892	30	8	18	1
1893	34	9	25	1

The petitions for dissolution of marriage amounted on the average for the seven years to 7·76 in every 1,000 marriages, and the decrees for dissolution to 5·62.

The proportion of petitions and decrees for dissolution of marriage to the number of marriages is higher in New Zealand than in England and Wales, but lower than in New South Wales or Victoria. The proportion in every 1,000 marriages for these countries is as follows:—

Country.	Petitions for Dissolution of Marriage.	Decrees for Dissolution of Marriage.
New Zealand (1893)	8·26 ..	6·07
England and Wales	1·88 ..	0·95
New South Wales (1893) ..	54·72 ..	39·36
Victoria (1892)	21·75 ..	11·80

In 1889 an Act was passed in Victoria to allow of divorces being granted for wilful desertion, habitual drunkenness with cruelty or neglect, imprisonment under certain circumstances of either party, and adultery on the part of the husband. This multiplication of the causes for divorce has largely increased the proportion of decrees in that colony.

An Act of a similar tenor was passed in New South Wales in 1891, and brought into working in August of the following year, with the result that the number of decrees (*nisi*) of divorce increased from 66 in the year 1891 to 102 in 1892, and 305 in 1893.

Criminal Cases.

In respect of criminal statistics New Zealand compares favourably with the colonies of Australia, as will be seen on reference to the following figures, taken from the Victorian Year-book for 1893:—

1891.	Proportion per 1,000 of Population of		Proportion per 10,000 of Population of	
	Apprehensions and Summonses.*	Summary Convictions.	Commitments.	Convictions after Commitment.
Queensland	46·26	35·19	14·21	6·00
New South Wales ..	66·29	48·72	13·83	8·43
Victoria	52·27	36·97	9·96	6·36
South Australia ..	25·56	21·85	5·04	2·84
Western Australia ..	97·67	64·67	18·93	8·59
Tasmania	41·44	31·96	6·58	2·96
New Zealand (exclusive of Maoris)	27·29	20·72	7·34	3·50

Judging by the number of summary convictions in 1891, the amount of crime in New Zealand appears to have been at that time proportionately less than in any one of the Australian Colonies. The ratio of convictions after commitment was somewhat higher than in South Australia and Tasmania, but decidedly lower than in any other colony.

The number of charges heard before the Magistrate's Courts in 1893 was 18,271. Repeated charges against the same person are counted as distinct. In 1892 the number was 18,017; in 1891, 17,613; in 1890, 18,701; in 1889, 18,845; and in 1888, 19,167. Of the charges in 1893, 339 were against persons of the aboriginal native race, a decrease of 91 on the number for the previous year.

If the Maoris be excluded the number of charges in 1893 is found to be 17,932, an increase of 345 upon the number for 1892; and the proportion per 1,000 of population is 27·12, against 27·38 for 1892.

The figures, both numerical and proportional, for a series of twelve years are subjoined:—

CHARGES BEFORE MAGISTRATES.

Year.	Number.	Proportion per 1,000 of Population.	Year.	Number.	Proportion per 1,000 of Population.
1882	22,108	43·41	1888	18,829	30·82
1883	22,511	42·52	1889	18,476	30·10
1884	23,105	41·81	1890	18,247	29·39
1885	22,709	39·61	1891	17,189	27·29
1886	21,227	36·46	1892	17,587	27·38
1887	19,924	33·41	1893	17,932	27·11

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* Not including civil cases.

A comparison of the number of persons in New Zealand summarily convicted and convicted in the superior Courts during six years ending with 1893, shows a decrease in the proportion of these convictions per 1,000 of the population. The figures given exclude the Maoris:—

Years.	Summary Convictions.		Convictions in Superior Courts.	
	Number.	Proportion per 1,000 of Mean Population.	Number.	Proportion per 1,000 of Mean Population.
1888.				
Offences against the person ..	715	1·18	42	0·07
Offences against property ..	1,246	2·06	178	0·29
Other offences	12,298	20·31	35	0·06
Totals	14,259	23·55	255	0·42
1889.				
Offences against the person ..	716	1·17	30	0·05
Offences against property ..	1,377	2·24	152	0·25
Other offences	11,768	19·16	43	0·07
Totals	13,861	22·57	225	0·37
1890.				
Offences against the person ..	794	1·28	18	0·03
Offences against property ..	1,273	2·05	138	0·22
Other offences	11,818	19·04	36	0·06
Totals	13,885	22·37	192	0·31
1891.				
Offences against the person ..	751	1·19	31	0·05
Offences against property ..	1,312	2·08	141	0·23
Other offences	10,988	17·45	42	0·07
Totals	13,051	20·72	214	0·35
1892.				
Offences against the person ..	771	1·20	29	0·05
Offences against property ..	1,294	2·01	127	0·20
Other offences	11,225	17·48	24	0·04
Totals ..	13,290	20·69	180	0·29
1893.				
Offences against the person ..	760	1·15	48	0·07
Offences against property ..	1,361	2·06	174	0·26
Other property	11,336	17·14	38	0·06
Totals ..	13,457	20·35	260	0·39

The general results shown in the above table are borne out in a most satisfactory manner by the statistics relating to prisoners in gaol (see *post*, p. 217), which also show a marked decrease in crime during the five years.

The summary convictions in 1893 numbered 13,710, including 253 Maoris. 520 persons were committed for trial at the Supreme and District Courts, an increase of 154 on the number committed in 1892.

"The Justice of the Peace Act, 1882," provides that sundry indictable offences may with the consent of the accused be summarily dealt with by Magistrates. The increasing use of this provision may have affected the number of convictions in the higher Courts shown in the six-year table.

Including 12 Maoris, the convictions in the superior Courts numbered 272.

The number of summary convictions in the various Magistrates' Courts for certain of the most common offences in each of the past six years, together with the proportion per 1,000 of the mean population (excluding Maoris) is given herewith:—

SUMMARY CONVICTIONS.

	Numbers.					
	1888.	1889.	1890.	1891.	1892.	1893.
Assaults	633	636	705	675	656	670
Larceny *	971	1,085	905	934	904	978
Drunkenness	5,402	5,152	5,677	5,118	5,055	5,048

	Proportions per 1,000 of the Population.					
	1888.	1889.	1890.	1891.	1892.	1893
Assaults	1·05	1·04	1·14	1·07	1·02	1·01
Larceny *	1·60	1·77	1·45	1·48	1·41	1·48
Drunkenness	8·92	8·39	9·14	8·13	7·87	7·63

The proportion of assaults for 1893 is found to be less than for any one of the previous five years. In the year 1887 it was as high as 1·23 per 1,000. During the four years 1890–93 the proportion of larcenies remained almost without change. The record of drunkenness shows a falling rate for the four years 1890–93. It would seem that the rates given for 1888–89 are incorrect, as they were worked upon an estimate of population which the census of 1891 proves to have been exaggerated. Could the true figures be ascertained they might possibly show a steady decline throughout the period under review. The range for eight years is from 10·28 per 1,000 persons in 1886 to 7·63 in 1893.

To judge by the consumption of beer, wine, and spirits in the period 1884–1893, there has been a considerable falling-off during the last ten years in the use of alcoholic liquors in this colony.

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* Including embezzlement, receiving, and false pretences.

CONSUMPTION OF BEER, WINE, AND SPIRITS PER HEAD OF POPULATION (EXCLUDING MAORIS).

	Beer. Gal.	Wine. Gal.	Spirits. Gal.
1884	8·769	0·272	0·999
1885	8·414	0·261	0·899
1886	7·861	0·212	0·820
1887	7·651	0·198	0·770
1888	7·133	0·167	0·820
1889	7·624	0·176	0·598
1890	7·899	0·184	0·693
1891	7·646	0·172	0·699
1892	7·807	0·174	0·708
1893	7·716	0·170	0·697

At the same time a comparison of the convictions for drunkenness shows that excessive drinking was not so prevalent in 1893 as it was ten years previously. The prison statistics are here of great value, as showing for several years back the number of distinct prisoners received into gaol after being convicted of drunkenness. The figures for the years 1885–93 are as follow (readmissions of the same person not counted) :—

DISTINCT PRISONERS CONVICTED OF DRUNKENNESS RECEIVED INTO GAOL.

1885	1,200
1886	1,077
1887	1,038
1888	938
1889	802
1890	808
1891	694
1892	638
1893	619

Here the decrease proceeds rapidly and almost uniformly from year to year. It is true that the option of a fine is generally given to a person convicted of drunkenness, but there is nothing to show that the proportion of fines for this offence has increased of late, so that a fall in the number of distinct persons imprisoned may fairly be accepted as evidence of growing sobriety among the people.

In New South Wales and Victoria the consumption per head of alcoholic liquors is much greater than it is here. The figures are,—

	Beer. Gal.	Wine. Gal.	Spirits. Gal.
Victoria	19·36	1·01	1·12
New South Wales	10·91	0·86	1·00

In each of these colonies, as also in Queensland and South Australia, arrests for drunkenness are, in proportion to population, far more numerous than in New Zealand. The order of the colonies in this respect is as under :—

ARRESTS, ETC., FOR DRUNKENNESS IN PROPORTION TO POPULATION.

New South Wales	19·30 per 1,000
Victoria	15·74 „
Queensland	13·68 „
South Australia	9·41 „
New Zealand	8·55 „
Tasmania	7·70 „

The Native population of the colony may be regarded as stationary, and a comparison of the numbers of summary convictions by the higher and lower Courts for the last ten years seems to lead to the conclusion that crime amongst the Maoris is not increasing. The figures, especially those relating to the convictions by the superior Courts, though small, are considered sufficient to justify this inference :—

SUMMARY CONVICTIONS OF MAORIS.

Year.	Number.
1884	296
1885	238
1886	277
1887	279
1888	213
1889	221
1890	243
1891	298
1892	293
1893	253

CONVICTIONS OF MAORIS IN SUPERIOR COURTS.

Year.	Convictions.	Number of Persons convicted.
1884	27	22
1885	15	13
1886	22	27
1887	11	13
1888	10	10
1889	10	10
1890	31	35
1891	7	7
1892	16	15
1893	13	12

Prisoners in Gaol.

The total number of prisoners received in the different gaols of the colony during the year 1893 was 3,759, including persons awaiting trial but not convicted within the year, and counting as distinct persons repeated admissions of the same person, as well as transfers from gaol to gaol of convicts undergoing sentence. In 1892 the number received was 3,698, so that the figures for 1893 show an increase of 61. Of 3,759 admissions for 1893, 40 were for debt, and 87 on account of lunacy; while 125 were Maoris imprisoned for various offences. If the debtors, lunatics, and Maoris be excluded, the number of persons received into gaol is reduced to 3,507, against 3,469 in 1892, an increase of 38. In 1881, when the mean population was only 493,482 persons, the corresponding number of admissions was 4,207.

The number of persons in gaol (including Maoris) at the end of each of thirteen years is next given, with the proportion per 1,000 of the population (also including Maoris) for 1881 and 1893, showing again a great decrease in the number of prisoners :—

Prisoners in Gaol (31st December).

Year.	Undergoing Sentence.	Debtors and Lunatics.	On Remand and awaiting Trial.	Total.
1881	631	10	57	698
1882	570	8	58	636
1883	561	6	46	613
1884	560	5	64	629
1885	531	8	50	589
1886	558	6	61	625
1887	633	5	53	691
1888	605	2	34	641
1889	611	3	19	633
1890	517	3	42	562
1891	494	4	36	534
1892	433	5	38	476
1893	463	6	33	502

	1881.	1893.
Proportion of prisoners in confinement at end of year per 1,000 of population, including Maoris	1·28	0·70

It is claimed by the Inspector of Prisons that the steady decrease in the number of prisoners observable since 1881 may be looked upon as evidence that the object of legal punishment has been to a great extent achieved; and he states in his report for the year 1892 that the significance of "these figures" (*i.e.*, the prison statistics) "cannot be overrated as a practical test of the preventive and punitive measures in force." In his report for 1894 he further writes,—

> It is argued that the prison system in this colony as now carried out does not reform or deter those who come within its range. Whatever truth there may be in this argument is due solely to the want of proper accommodation, which prevents the proper separation of the younger in crime from those who have spent the greater portion of their lives in gaol. To properly carry out a classification system, it is imperative that each prisoner should have a separate cell, so as to prevent moral contagion and opportunities of rebellious combination. The separation of criminals from each other lies at the very basis of the best systems, both as a means of reformation and deterrence. If there is any one thing on which prison reformers agree, it is that prisoners should associate as little as possible with each other. Aside from its deterrent effect, separate imprisonment has the advantage of removing any fear of a prisoner becoming any more depraved that he already is; and he is far more likely, when left to his own reflections, to be improved by exhortations from good men than he would be among a lot of congenial companions. It must be clearly understood that the cellular system here advocated does not mean "solitary" confinement, but merely a separation from evil companions. This system, though costly at first, has been found ultimately most economical, by diminishing crime and enabling shorter sentences to be substituted, with more both of reformation and deterrence than long periods of associated criminal detention carry with them; but a system such as this cannot be carried out at present, owing to want of accommodation in the different localities.

Of the prisoners previously convicted received in 1893, 391 men and 42 women had been convicted once; 228 men and 34 women twice; 808 men and 462 women three or more times: making a total of 1,427 men and 538 women.

Of 3,759 prisoners received, 3,140 were able to read and write, 152 could read only, 421 were unable to read, and 46 were of superior education.

Besides the returns from the Prisons Department, a separate card for each admission is furnished for every gaol. Such cards as show convictions are arranged alphabetically, and where several are found referring to the same person, all are thrown out but one; then the number of cards retained equals the actual number of distinct convicted prisoners received in the various gaols during the year. In 1893 this number (excluding Maoris) was 2,111, a decrease of 53 on the number in 1892. These figures do not include children committed to the industrial schools simply on the ground that they are neglected or destitute.

The following shows the number of distinct persons (exclusive of Maoris) imprisoned in the past eight years after conviction, only one cause being given when the same person was imprisoned more than once.

Offences.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Felony and larceny ..	594	526	563	527	516	506	455	505
Misdemeanour ..	90	120	97	131	101	120	113	88
Injury to property ..	54	62	47	53	65	51	61	58
Assault and resisting the police	209	178	162	170	206	179	190	167
Acts of vagrancy ..	205	238	251	351	333	225	376	371
Drunkenness ..	1,077	1,038	938	802	808	694	638	619
Other offences ..	545	477	473	365	368	338	331	303
Totals ..	2,774	2,639	2,531	2,399	2,397	2,113	2,164	2,111

Thus, in 1886, these convicted prisoners averaged 47·82 in every 10,000 of the population; in 1887, 44·25; in 1888, 41·81; in 1889, 39·00; in 1890, 38·61; in 1891, 33·55; in 1892, 33·69; and in 1893, 31·92. There has been since 1886 a decrease of 23·90 per cent. in the number of distinct convicted prisoners, and a reduction of 15·9 in the proportion to population. In New South Wales the proportion for 1892 was 75 per 10,000 persons.

It must be understood that the actual number of imprisonments for some of the above offences was much in excess of the figures given, as many were several times imprisoned, either for offences differing in kind or for repetitions of the same offence. Thus, many persons returned as imprisoned for larceny underwent other imprisonments for drunkenness, &c. Many returned as convicted of drunkenness were several times in gaol during the year for the same offence, or for some other, such as assault, riotous or indecent conduct, &c. Often there were several charges preferred against the same person at the one time, of which the most serious followed by conviction has been selected.

The following table shows the number of distinct persons exclusive of Maoris) received into gaol after conviction during 893, classified according to nature of offence, religion, birthplace, nd age:—

DISTINCT CONVICTED PRISONERS RECEIVED INTO GAOL, 1893.

[NOTE.—In this and the following tables a prisoner convicted of more than one offence during the year is reckoned once only under the heading of the principal offence—*e.g.*, a prisoner convicted three times of drunkenness, twice of vagrancy, and once of larceny is counted only once under the heading "Larceny." Debtors and lunatics received into gaol, and children committed to the industrial schools, but not convicted of any crime, are omitted.]

—	Felony and Larceny.		Misdemeanour.		Injury to Property.		Assault and resisting Police.		Vagrancy.		Drunkenness.		Other Offences.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Religions—																
Church of England	226	25	33	2	18	4	73	...	139	33	206	45	134	1	829	110
Roman Catholic	110	20	26	1	21	9	47	4	80	47	173	56	93	4	559	141
Presbyterian	62	3	12	...	4	...	26	...	36	12	84	20	41	...	265	35
Wesleyan	29	2	4	1	...	...	5	...	9	1	6	5	10	...	54	9
Others	26	2	8	1	2	...	12	...	14	...	22	2	20	...	104	5
Totals	453	52	83	5	45	13	163	4	278	93	491	128	298	5	1,811	300
Birthplaces—																
England and Wales	157	16	22	3	17	3	50	...	104	16	183	34	94	1	627	73
Scotland	46	7	7	1	3	...	22	...	30	9	67	17	43	...	218	34
Ireland	64	19	15	1	11	7	37	4	59	37	145	57	67	3	398	128
New Zealand	105	9	21	...	9	2	31	..	42	21	44	15	55	1	307	48
Australian Colonies	31	1	7	...	4	...	3	...	21	7	16	4	17	...	99	12
Other British Possessions	7	...	...	...	...	...	4	...	3	2	8	1	4	...	26	3
China	6	...	2	...	...	...	2	...	...	...	...	...	...	...	10	...
Other countries	37	...	9	...	1	1	14	...	19	1	28	...	18	...	126	2
Totals	453	52	83	5	45	13	163	4	278	93	491	128	298	5	1,811	300
Ages—																
Under 10 years	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
10 and under 12 years	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
12 and under 15 years	7	...	2	...	...	...	...	...	...	...	...	...	1	...	10	...
15 and under 20 years	63	4	6	...	1	...	9	...	4	4	8	3	19	...	110	11
20 and under 25 years	61	4	18	...	6	...	28	...	18	12	18	4	50	...	191	20
25 and under 30 years	64	2	24	...	8	3	29	...	27	17	59	11	61	1	282	34
30 and under 40 years	124	13	24	2	14	3	41	3	80	30	124	35	72	2	470	88
40 and under 50 years	66	22	1	1	8	3	33	1	80	18	125	40	52	2	385	87
50 and under 60 years	48	6	6	1	5	3	18	...	45	10	101	29	31	...	254	49
60 years and over	16	1	1	1	3	1	5	..	24	2	56	6	11	...	118	11
Totals	453	52	83	5	45	13	163	4	278	93	491	128	298	5	1,811	300

Of the above prisoners convicted, 13 (12 men and 1 woman) were released upon probation under "The First Offenders' Probation Act, 1886," as against 11 in 1892 and 24 in 1891. During the year 1893, 59 persons were placed upon probation, as against 51 in 1892. Twenty-five carried out the conditions of their licenses satisfactorily and were discharged, 3 were rearrested and committed to prison, 3 absconded, and 28 were at the end of the year still under the supervision of the Probation Officers completing their respective terms of probation. The Inspector of Prisons remarks, as to the working of the Act from the beginning, that "Of the 558 persons placed on probation since the Act came into force in October, 1886, 469 have been discharged after satisfactorily carrying out the terms of their licenses, 29 were rearrested and sentenced to various terms of imprisonment, 2 died, 15 have eluded the vigilance of the Probation Officer and absconded, and 43 remain on probation. The Act continues to work most satisfactorily, and has done much to mitigate the evils of contamination by giving first offenders a chance of reforming which they could never get if once sent to prison; but, as regards prisoners awaiting trial, it is thought the Act is not so fully taken advantage of as it might be in the cases of persons of good character. The whole question of prisoners awaiting trial is beset with difficulties, for while some of these persons are certainly guilty, others are as certainly innocent, and the often unduly-prolonged delay between their committal and trial makes it impossible, with the present limited accommodation in the awaiting-trial portions of the gaols, to carry out proper separation, which is more essential with this class of prisoners than with others. When it is recollected that some at least of these persons are detained only on account of their poverty, and consequent inability to find bail, it is thought that considerable advantage, without much risk, would be gained by placing those against whose character nothing bad is known under the operation of the Probation Act while awaiting trial,—provided, of course, that the offences with which they stand charged are those to which the Act applies."

The proportions of adherents of each of the four principal religious denominations in every 100 distinct convicted prisoners during the past five years are shown in the next table, with the percentages of population belonging to the same denominations at the date of the last census:—

RELIGIOUS DENOMINATIONS OF DISTINCT CONVICTED PRISONERS RECEIVED IN 1893.

Denominations of Convicted Prisoners.	Proportion per 100 of Convicted Prisoners.					Proportion of Denomination per 100 of Population at Census of 1891.
	1889.	1890.	1891.	1892.	1893.	
Church of England ..	43·31	43·18	42·17	43·21	44·48	40·51
Roman Catholic ..	32·85	32·29	33·18	33·13	33·16	13·96
Presbyterian ..	15·21	15·68	15·19	15·30	14·21	22·62
Wesleyan ..	2·71	3·09	2·84	3·65	2·99	10·14

Still excluding Maoris, the following are the proportions of distinct convicted prisoners, classified according to birthplace, for each of the past five years:—

BIRTHPLACES OF DISTINCT CONVICTED PRISONERS RECEIVED IN GAOL, 1893.

Birthplace.	Number of Convicted Prisoners.					Proportion of each Nationality to every 100 Prisoners.					Proportion of Persons of each Nationality to every 100 of Population, 1891.
	1889.	1890.	1891.	1892.	1893.	1889.	1890.	1891.	1892.	1893.	
England & Wales	807	811	708	728	700	33·64	33·83	33·51	33·64	33·16	19·06
Scotland ..	313	309	259	270	252	13·05	12·89	12·26	12·48	11·94	8·30
Ireland ..	639	633	530	528	526	26·64	26·41	25·08	24·40	24·92	7·61
New Zealand ..	294	316	273	328	355	12·25	13·18	12·92	15·16	16·82	58·61
Australian Colonies	107	95	119	79	111	4·46	3·96	5·63	3·65	5·26	2·55
Other British Possessions	27	33	33	47	29	1·13	1·38	1·56	2·17	1·37	0·59
China ..	19	10	14	3	10	0·79	0·42	0·66	0·14	0·47	0·71
Other Foreign Countries	193	190	177	181	128	8·04	7·93	8·38	8·36	6·06	2·57

That the number of prisoners born in the United Kingdom should fall off year by year was to be expected, but the smallness of the increase in the number of New-Zealand-born (only 2·07 per cent. in the five years) is remarkable. While the New-Zealand-born formed at the last census 58 per cent. of the whole population of the colony, they contributed in 1893 not more than 17 per cent. of the prisoners received in gaol. Of the New-Zealand-born population, however, a large number are under 15 years of age, a period of life at which there are very few prisoners; and, therefore, another comparison is necessary. It is found that the New-Zealand-born over 15 years formed 34 per cent. of the total population above 15; but, as before stated, New-Zealanders constituted only 17 per cent. of the total number received in gaols.

The following are the respective proportions of the convicted prisoners received at each age-period of life to every 100 prisoners of either sex for the years 1892 and 1893:—

AGES OF DISTINCT CONVICTED PRISONERS RECEIVED IN GAOL, 1892 AND 1893.

Age.	Male Prisoners.		Per 100 Male Prisoners.		Female Prisoners.		Per 100 Female Prisoners.	
	1892.	1893.	1892.	1893.	1892.	1893.	1892.	1893.
Under 20 years	127	122	6·84	6·74	13	11	4·23	3·67
20 and under 30 years ..	446	453	24·02	25·01	61	54	19·87	18·00
30 and under 40 years ..	447	479	24·07	26·45	90	88	29·32	29·33
40 and under 50 years ..	417	385	22·46	21·26	90	87	29·32	29·00
50 and under 60 years ..	271	254	14·59	14·02	45	49	14·66	16·33
60 years and upwards ..	149	118	8·02	6·52	8	11	2·60	3·67
Totals	1,857	1,811	100·00	100·00	307	300	100·00	100·00

The subjoined table deals with New-Zealand-born prisoners only (excluding Maoris):—

DISTINCT NEW-ZEALAND-BORN CONVICTED PRISONERS RECEIVED DURING THE YEAR 1893.

Offences.	Under 10.		10 and under 12.		12 and under 15.		15 and under 20.		20 and under 25.		25 and under 30.		30 and under 40.		40 and upwards.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Felony and larceny	..	..	..	..	7	..	46	4	25	2	15	1	11	..	1	2	105	9
Misdemeanour	..	..	1	..	2	..	4	..	4	..	2	..	4	..	4	..	21	..
Injury to property	..	..	..	..	..	..	1	..	5	..	3	1	..	..	..	1	9	2
Assault and resisting police	..	..	..	..	..	..	8	..	9	..	10	..	3	..	1	..	21	..
Acts of vagrancy	..	..	..	..	..	..	2	3	10	8	8	6	12	3	10	1	42	21
Drunkenness	..	..	..	..	..	..	3	3	9	2	22	6	6	2	4	2	44	15
Others	1	..	..	..	1	..	12	..	16	..	14	1	6	..	5	..	55	1
Totals, 1893	1	..	1	..	10	..	76	10	78	12	74	15	42	5	25	6	307	48
Totals, 1892	1	..	1	..	15	..	78	12	78	16	45	12	45	4	18	3	281	47
Totals, 1891	1	..	2	..	14	..	69	7	70	17	26	9	31	10	14	3	227	46
Totals, 1890	6	..	5	1	20	..	63	15	85	19	41	12	28	8	10	3	258	58
Totals, 1889	2	..	4	1	15	4	62	14	59	20	42	12	37	2	15	5	236	58

Here the total number of distinct prisoners received for the year 1893—355 persons—is found to be 61 in excess of the number for 1889. Of those received in 1893, 98 were under twenty years of age.

The figures tend to show that the New-Zealander is not greatly given to drunkenness, and but little addicted to deeds of violence. On the other hand, he is more given to theft and offences of a like nature. The proportion of New-Zealand-born prisoners convicted of felony and larceny was, in 1893, 32·11 per cent.; while for all prisoners the proportion was only 23·92 per cent.

As before stated, the plan adopted in preparing the six foregoing tables is to count each prisoner only once, and to exclude all who are not convicted prisoners, besides dealing only with the number received during the year, instead of with the full number in gaol, which would, of course, include those brought forward from the previous year. The comparative results for a series of years given by this method are held to be more valuable than those brought out by one which includes prisoners merely awaiting trial, and continual repetitions of the same individuals.

Inquests.

The number of bodies on which inquests were held in 1893 was 759, including 18 Maoris. In 592 cases the bodies were of males, and in 167, of females. The verdicts may be classified as under:—

Nature of Verdict.	Inquests on Persons.		
	Males.	Females.	Total.
Accident	228	50	338
Disease and natural causes	228	90	318
Intemperance	10	2	12
Homicide	2	2	4
Suicide	49	15	64
Not classed	15	8	23
	592	167	759

Of the accidental deaths, the most fatal form is still drowning. The verdicts show that 140 bodies were found drowned, giving a percentage of 41·42 on the accidental deaths from all causes.

The inquests on suicidal deaths in 1893 were in excess of the numbers in 1892 and 1891. The numbers are,—

Year.	Inquests on Suicides.		
	Males.	Females.	Total.
1891	46	8	54
1892	50	8	58
1893	49	15	64

Fire Inquests.

The inquests on fires held during 1893 were 36. In nine cases the verdict was incendiarism, in seven accident, and in twenty no evidence was forthcoming.

EDUCATION.

It has been found impossible to collect the full statistics relating to education for the year 1894 in time for this work, and the figures for the previous year are accordingly given. An account of the Government schools for 1894 will, however, be found in the special article dealing with the system of education in the colony.

The number of schools, teachers, and scholars, as in December, 1893, is shown in the following summary:—

Description of Schools.	Number of Schools.	Teachers.	Scholars.
EUROPEAN.			
Public (Government) schools (scholars other than Maoris and half-castes)	1,355	3,268	123,257
Public (Government) schools (half-castes living among Europeans)			827
Colleges, grammar, and high schools (aided or endowed)	24	166	2,251
Private schools (excluding Maori scholars) ..	299	741	14,922
Industrial schools and orphanages	10	10	721
Native village schools, European children attending	..	..	352
School for deaf-mutes	1	5	39
Jubilee Institute for Blind	1	2	27
Totals—Europeans	1,690	4,192	142,396
NATIVE.			
Native village schools supported by Government (excluding European children stated above) ..	62	105	1,782
Private Native boarding schools (maintenance of scholars paid by Government)	4	3	62
Private Native boarding schools (maintenance of scholars paid from endowments)			120
Private Native day-schools	3	4	94
Public (Government) schools, Maoris attending	..	..	511
Public (Government) schools, half-castes living as Maoris attending	..	..	95
Private schools for Europeans, Maoris attending	..	..	9
Totals—Natives	69	112	2,673

Thus at the end of 1893 there were 1,759 schools of all classes at which members of the European and Maori races were being educated. This was an increase of 73 on the number in 1892. The public primary schools numbered 1,355 in 1893, against 1,302 in

1892. The number of aided or endowed colleges, grammar, and high schools was 24, the same as in the previous year. The number of private schools from which returns were received by the Registrar-General was 299, an increase of 25. There were also 10 industrial schools and orphanages, public and private, as well as 1 school for deaf-mutes subsidised by Government, and 1 school for the blind.

The number of schools established for the education of the Native or Maori race was 69, against 75 in 1892.

Education at the public schools is free (except that, at such as are also district high schools, fees are charged for the teaching of the higher branches) and purely secular. The attendance of all children between the ages of 7 and 13 is compulsory, except when special exemptions are granted, or a child is being otherwise sufficiently educated.

The subjects of instruction at the primary schools are required by the Education Act to be the following: Reading, writing, arithmetic, English grammar and composition, geography, history, elementary science and drawing, object-lessons, vocal music, and (in the case of girls) sewing and needlework, and the principles of domestic economy. Provision must also be made for the instruction in military drill of all boys in these schools.

The number of boys and girls of European descent, including half-castes living among Europeans, on the rolls of attendance of the various schools in the last quarter of 1893 was 142,396, an increase on the corresponding number in 1892 of 2,555. Of these, 124,084 were attending the public schools, 2,251 the colleges, grammar, and high schools, 14,922 private schools, 721 were inmates of orphanages and industrial schools, 352 attended Native village schools, 39 were deaf-mutes at the Government institution, and 27 were at the institute for the blind.

There was an increase (exclusive of Maoris) during the year of 2,061 in the number attending public schools, and of 466 in the number attending private schools. The attendance at the college, grammar, and high schools decreased by 11, and the number of European children at Native village schools by 8.

Exclusive of Maoris, but including 387 male and 440 female half-castes living among Europeans, there were 63,953 boys and 60,131 girls in attendance at the public primary schools during the last quarter of 1893, an increase on the numbers in 1892 of 957 boys and 1,104 girls.

There were 1,345 male and 1,923 female teachers (exclusive of 160 sewing-mistresses) at the public schools at the end of 1893. Of the males, 238, and of the females, 825, were pupil-teachers.

Of the secondary or superior schools, 24 in number, 8 were for boys only, 7 for girls only, and 9 for boys and girls. The number of regular instructors in 1893 was 119, and of visiting instructors 47. The number of pupils on the roll for the last term of

1893 was 2,251; of these, 1,317 were boys and 934 girls. As compared with the last term of 1892, there was a decrease of 15 on the corresponding number of boys, and an increase of 4 on the corresponding number of girls.

The New Zealand University is not a teaching body; undergraduates for the most part keep their terms at one or other of the following affiliated institutions: the Auckland University College, the Canterbury College, and the University of Otago, each of which has a staff of professors and lecturers. On the 1st June, 1894, the number of graduates who had obtained direct degrees was 422. The number of undergraduates on the roll of the University at that date was 1,540 (exclusive of such as had not performed any academical act for a period of ten years), but only 688 were keeping terms, of whom 453 were males and 235 females. Fifty-two of the males and 8 of the females were medical students. The numbers of students attending lectures at the affiliated institutions during the year 1893–94 were as follow: At the Auckland University College, 54 matriculated and 73 non-matriculated; at Canterbury College, 198 matriculated and 142 non-matriculated; at the Otago University, 170 matriculated and 43 non-matriculated.

There were 299 private schools in the colony at the end of 1893, an increase of 25 on the number in 1892; 33 were for boys, 42 for girls, and 224 for children of both sexes. The number of pupils attending them was 14,922—namely, 6,431 boys and 8,491 girls, not counting Maoris—7 boys and 2 girls. The number of European pupils at these schools was greater than in 1892 by 466. Of the private schools 111 were Roman Catholic, with an attendance of 10,263 pupils.

The following gives, for the past eight years, the number of private schools and of Europeans attending them, the number of Roman Catholic schools and pupils being also shown separately:—

Year.	Number of Private Schools.	Pupils.			Included in previous Numbers.	
		Boys.	Girls.	Totals.	Roman Catholic Schools.	Pupils at Roman Catholic Schools.
1886	288	5,216	7,257	12,473	83	7,991
1887	299	5,771	7,616	13,387	90	8,946
1888	299	5,874	7,979	13,853	96	9,346
1889	293	5,778	7,680	13,458	95	9,024
1890	298	5,759	7,867	13,626	108	9,474
1891	281	6,234	7,908	14,142	110	10,144
1892	274	6,321	8,135	14,456	105	10,111
1893	299	6,431	8,491	14,922	111	10,263

The distribution of the private schools in the various provincial districts of the colony is shown in the two following tables:—

PRIVATE SCHOOLS, 1893.—SUMMARY BY PROVINCIAL DISTRICTS.

Provincial Districts.	Number of Schools.				Number of Teachers.			Number of Scholars (exclusive of Maoris).			Daily Average Attendance.		
	Boys.	Girls.	Mixed.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
Auckland	7	8	68	83	33	140	173	1,571	2,041	3,612	1,245	1,687	2,932
Taranaki	...	1	12	13	1	18	19	127	243	370	120	185	305
Hawke's Bay	3	4	9	16	10	30	40	366	474	840	313	395	708
Wellington...	7	8	34	49	41	107	148	1,133	1,546	2,679	955	1,374	2,329
Marlborough	1	2	6	9	1	11	12	113	217	330	94	196	290
Nelson	5	5	6	16	5	23	28	324	356	680	268	295	563
Westland	1	1	7	9	3	23	26	282	351	633	233	313	546
Canterbury	5	8	47	60	22	150	172	1,397	1,833	3,230	1,160	1,564	2,724
Otago	4	5	35	44	14	109	123	1,118	1,430	2,548	886	1,216	2,102
Totals	33	42	224	299	130	611	741	6,431	8,491	14,922*	5,274	7,225	12,499

* Exclusive of 9 Maoris—7 boys and 2 girls.

NOTE.—Denominational schools, such as Roman Catholic and Anglican, are included in the above as private schools. Particulars for the Roman Catholic schools in December, 1893, are as under.

SUMMARY OF ROMAN CATHOLIC SCHOOLS.

Provincial Districts.	Number of Schools.				Number of Teachers.			Number of Scholars.			Daily Average Attendance.		
	Boys.	Girls.	Mixed.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
Auckland	4	4	20	28	10	65	75	874	1,163	2,037	667	947	1,614
Taranaki	...	...	3	3	...	9	9	55	132	187	65	88	153
Hawke's Bay	1	2	4	7	3	20	23	270	406	676	222	336	558
Wellington	3	3	9	15	22	47	69	761	1,030	1,791	651	934	1,585
Marlborough	1	1	2	4	1	5	6	103	164	267	85	147	232
Nelson	2	3	3	8	2	18	20	269	313	582	223	255	478
Westland	1	...	5	6	3	20	23	272	325	597	225	292	517
Canterbury	3	5	11	19	10	61	71	937	1,168	2,105	762	981	1,743
Otago	3	2	16	21	11	68	79	946	1,075	2,021	766	928	1,694
Totals	18	20	73	111	62	313	375	4,487	5,776	10,263	3,666	4,908	8,574

The number of children 5 to 15 years of age shown by the census of April, 1891, was 167,164, and, assuming the proportions living at the various age-periods to remain constant, we get 179,330 as the estimated number at the end of 1893. There would therefore be a proportion of 76·16 per cent. of all children from 5 to 15 years of age in attendance at school. But the census showed 8,178 children being educated by means of home tuition, most of whom would be from 5 to 15 years old. Adding these, the proportion per cent. of European children at this age-period whose education is accounted for is found to be 80·72.

The total number of children of European descent (including such half-castes as live among Europeans) known to be receiving education at school at the end of 1893 was 142,396; of these, 136,582 were from 5 to 15 years of age.

The number of Native village schools at the end of 1893 either supported or subsidised by the Government was 62—five less than in 1892. In addition, there were four boarding-schools for Native children, the cost of whose maintenance was paid either by the Government or from endowments, and three private Native schools.

The number of Maori children attending schools at the end of 1893 was 2,673—namely, 1,525 males and 1,148 females. These included 95 children of mixed European and Native blood living as members of Native tribes.

The numbers at the several schools in 1892 and 1893 were as follow:—

Schools.	Maori Children attending Schools.					
	Boys.		Girls.		Total of both Sexes.	
	1892.	1893.	1892.	1893.	1892.	1893.
At public European schools ..	387	377	210	229	597	606
At Native village schools ..	998	987	775	795	1,773	1,782
At subsidised or endowed boarding-schools	111	96	83	86	194	182
At private European or Native schools	84	65	57	38	141	103
Totals	1,580	1,525	1,125	1,148	2,705	2,673

There was thus in 1893 a decrease of 55 in the number of Maori boys, but an increase of 23 in the number of Maori girls attending school.

The number of headmasters at Native village schools at the end of the year 1893 was 51; of head-mistresses, 10; of assistants, 44; and of sewing-mistresses, 11. The salaries of head-teachers ranged from £71 to £184, and those of assistants and sewing-mistresses from £50 to such very small allowances as £6 or £7. The expenditure in 1893 was £12,488 11s. 9d., made up as follows: Teachers' salaries and allowances, £8,725 12s. 7d.; boarding-school allowances (including scholarships) and apprenticeship, £1,452 1s. 11d.; buildings, fencing, furniture, &c., £669 13s. 7d.; repairs and small works, £413 17s. 10d.; books and school requisites, £366 3s. 3d.; inspection (including travelling), £773 16s. 10d.; cost of lantern-lectures, £13 15s. 4d.; sundries, £73 10s. 5d. The net expenditure is reduced to £12,405 6s. 3d., by a contribution of £83 5s. 6d. from Native reserve funds.

The cost of lantern-lectures is a new item. The sum of £13 15s. 4d. that appears in the foregoing statement was expended on an experiment tried at three or four schools. An arrangement has been made for extending the experiment to all the Native schools for the teaching of hygiene. Two lectures at least will be given at each school, with lantern illustrations in natural history and physiology, varied with geographical pictures and other interesting matter.

The epidemic of measles seriously affected the attendance at Native schools in 1893, and made heavy demands on the skill and kindness of many teachers, who were kept busy dispensing medicines and giving instruction and help in sick-nursing. The average weekly number of pupils belonging to the village schools was 2,220, and the average attendance 1,585, which is 71·4 per cent. of the number belonging. With respect to race, 10 per cent. of the whole number on the school-rolls were described as half-caste, 16½ per cent. as European or inclining to European, and 73½ per cent. as Maori or inclining to Maori. 45 per cent. of the pupils were above the age of ten years.

The total income of the various Education Boards for the year 1893 was £439,312 11s. 11d. The grants by Government amounted to £397,738 13s. 11d., an increase of £25,217 5s. 6d. on the grants in 1892. These grants consist of (1) a statutory allowance of £3 15s. per child in daily average attendance, (2) a further capitation allowance of 1s. 6d. for scholarships, and (3) a varying sum for school-buildings. The income from reserves amounted to £37,169 11s.

The total expenditure in 1893 amounted to £439,701 15s. 10d., of which the sum of £371,205 1s. 0d. was laid out on the maintenance of the schools, £11,360 10s. 11d. used to meet expenses of the Boards, £11,882 10s. 3d. spent on inspection of schools and examination of pupil-teachers, £44,387 2s. 4d. on school-buildings, and £866 11s. 4d. on miscellaneous services.

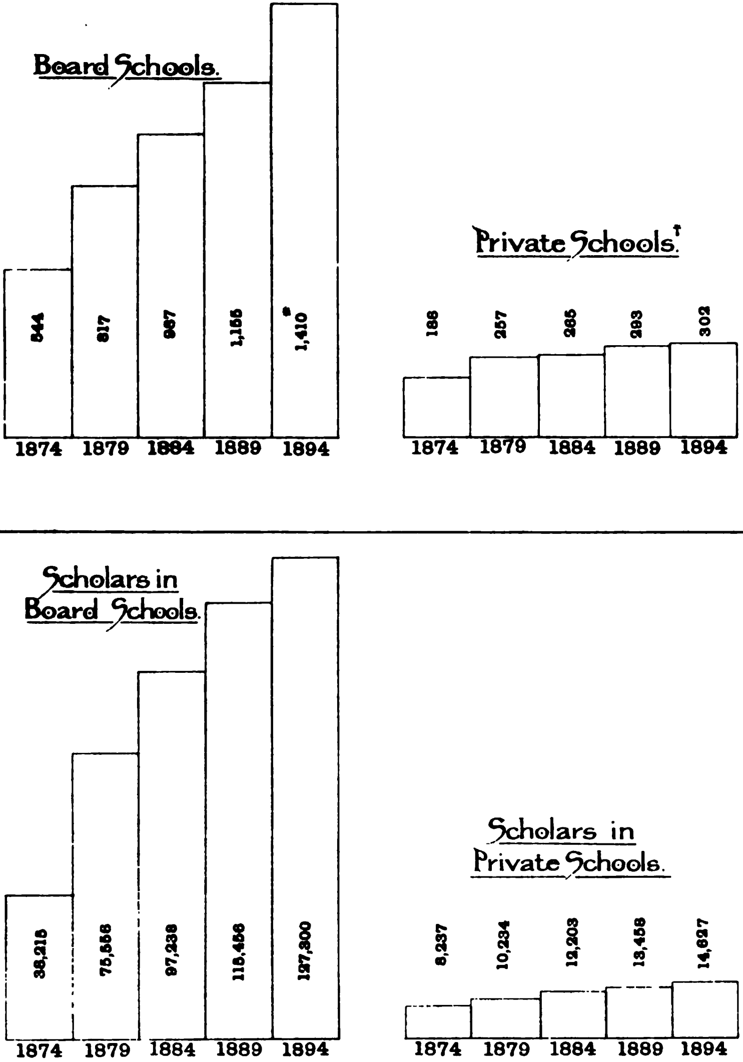
The net expenditure on Government industrial schools for 1893 exceeded the corresponding amount for 1892 by about £40. The gross cost to Government was £14,726 5s. 2d.; the net cost, £6,794 8s. 4d.

COST OF GOVERNMENT INDUSTRIAL SCHOOLS, 1893.

School.	Cost of School.			Cost of Boarding out.			Recoveries.			Net Cost.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Auckland	589	4	7	728	13	8	534	0	10	783	17	5
Kohimarama ..	655	1	9	203	11	4	312	4	3	546	8	10
Burnham	3,843	19	8	2,810	0	5	2,849	5	8	3,804	14	5
Caversham ..	2,892	8	3	3,003	5	6	4,420	16	6	1,474	17	3
Salary and expenses of Visiting Officer ..	..			..			..			184	10	5
Totals ..	7,980	14	3	6,745	10	11	8,116	7	3	6,794	8	4

EDUCATION.

Primary (Board) Schools and Private Schools.



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* In addition to these there were in December 1894, 64 Native Village Schools with 2418 children in attendance, 646 children at Industrial Schools and Orphanages, and 2448 scholars at the High Schools

† Roman Catholic Schools are included in the Private Schools. There were 117 of these schools and 9953 scholars attending in December 1894.

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The average number of inmates of all grades belonging to these schools was 1,122. The gross cost of the maintenance of each was £13 2s. 6d., and the net cost £6 1s. 1d. But the average number of inmates resident in the schools and boarded out was 631; and if the salaries and rent are regarded as a fair equivalent for the work involved in the superintendence of the inmates at service and otherwise out on probation, the remaining expenditure, amounting to about £12,000, is equal to about £19 each for the maintenance of the really dependent children.

The Government expenditure on the private industrial schools is next shown. The net expenditure is about £200 in excess of the corresponding amount for the preceding year.

GOVERNMENT EXPENDITURE ON PRIVATE INDUSTRIAL SCHOOLS, 1893.

School.	Payments.			Recoveries.			Net Expenditure by Government.		
	£	s.	d.	£	s.	d.	£	s.	d.
St. Mary's, Ponsonby (Auckland)	573	6	0	45	8	10	527	17	2
St. Joseph's, Wellington ..	149	13	0	24	0	4	125	12	8
St. Mary's, Nelson	2,008	19	6	289	5	5	1,719	14	1
Totals	2,731	18	6	358	14	7	2,373	3	11

The children at the deaf-and-dumb institution at Sumner, near Christchurch, were 39 in December, 1893, being 7 fewer than in December, 1892. The institution is under Government control. The expenditure for the year 1893 was £3,223 5s. 2d., made up as follows: Salaries of professional staff, £1,008 7s. 2d.; salaries and wages of domestic staff, £449 1s. 9d.; rent, £470; housekeeping, £840 10s. 11d.; travelling, £172 16s. 11d.; expenses in connection with Commission and Parliamentary Committee, £10 6s. 2d.; school material and appliances for technical instruction, £61 0s. 7d.; repairs, drainage, &c., £124 0s. 8d.; sundries, £87 1s. Contributions received from parents amount to £211 6s. 3d., making the net cost £3,011 18s. 11d. The children are taught to speak with the mouth, and to read articulate speech by observing the movement of the lips. The census showed a total number of 98 deaf-and-dumb persons under 20 years of age residing in the colony, so that more than one-third of the full number would appear to be living at the institution.

The blind pupils formerly sent to Melbourne or Sydney are now provided for in the Jubilee Institution for the Blind at Auckland. The number at the end of the year was 27. In cases where necessity has been shown, the Education Department pays at the rate of £25 a year for each pupil, recovering what is possible from parents. Twenty-one of the 27 in the institution in December, 1893, were so maintained: the payments on their account amounted to £526, of which sum £62 10s. was recovered from parents. The number of blind persons under 20 years of age returned at last census as living in the colony was 30.

LOCAL GOVERNING BODIES.

On the 31st March, 1894, there were in New Zealand 94 boroughs and 79 counties for purposes of local government. Contained within the counties were 247 road districts and 41 town districts,[*] but much of the area of the counties is outlying country not included within any road district. There were also 28 River Boards (one of which was also a Road Board), 23 Harbour Boards, 1 Drainage Board, and 3 Land-drainage Boards constituted under the Act of 1893. The full details of the rates struck by these bodies, and the receipts and expenditure of each, are given in the tables of the statistical volume for 1893, pp. 399 to 431, but are too lengthy for insertion here; summarised results only will be dealt with in this report.

The amount of direct taxation imposed on the people by these local bodies in the form of rates amounted to a gross sum of £551,412 for the year 1893–94, equivalent to an average of 16s. 6d. per head of mean European population for that year. Including licenses and other taxes, the total amounts to £646,560 or 19s. 5d. per head. The taxation levied by each class of the local bodies was as follows:—

TAXATION BY LOCAL BODIES, 1893–94.

Local Bodies.	Rates.						Licenses.			Other Taxes.			Total.		
	General.			Special and Separate.											
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Counties[*] ...	128,979	7	8	27,197	11	5	21,162	11	6	8,592	12	0	185,932	2	7
Boroughs[*] ...	116,235	13	4	126,962	8	2	51,615	2	11	5,592	15	0	300,405	19	5
Town Boards[*] ...	3,482	6	3	331	3	3	5,072	6	0	268	10	3	9,154	5	9
Road Boards[*] ...	88,721	10	6	7,978	19	11	2,255	18	10	587	13	10	99,544	3	1
River Boards[*] ...	5,467	2	6	1,560	7	10	...			...			7,027	10	4
Harbour Boards[†]	...			24,790	9	7	...			...			24,790	9	7[‡]
Drainage Board[†]	19,705	0	5	...			...			...			19,705	0	5
Totals ...	362,501	0	8	188,821	0	2	80,105	19	3	15,041	11	1	646,559	11	2

[*] For year ended 31st March, 1894.
[†] For year ended 31st December, 1893.
[‡] Wharfage dues, charges, fees, tolls, rents, &c., amounting to £271,568 4s. 10d. have not been classed as taxation.

The receipts (distinguishing revenue from other sources of income) and expenditure of the various local bodies, with the amount of rates collected and the amount of indebtedness on account of loans for each of the past fourteen years, are shown in the following table:—

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[*] One of these is the special Town District of Rotorua, constituted under "The Thermal Springs Districts Act, 1881."

LOCAL GOVERNING BODIES.—RATES, RECEIPTS, EXPENDITURE, AND LOANS, 1881 TO 1894.*

Year.	Receipts of Local Bodies.				Expenditure of Local Bodies.†	Outstanding Loans of Local Bodies (excluding Government Loans, for which see the following Columns).	Government Loans to Local Bodies.	
	Revenue.		Receipts not Revenue.	Total Receipts			Under "The Roads and Bridges Construction Act, 1882."	Under "The Government Loans to Local Bodies Act, 1886" (including Debentures under the Roads and Bridges Construction Act, converted).
	From Rates.	From Government and other Sources.						
	£	£	£	£	£	£	£	£
Year ended 31st March, 1881	249,087	814,142	889,705	1,952,934	1,871,752	3,039,807	..	..
" " 1882	297,328	694,652	419,608	1,411,588	1,637,337	3,277,584	..	..
" " 1883	327,129	600,450	311,466	1,239,045	1,397,863	3,540,046	..	..
" " 1884	398,659	744,527	331,994	1,475,180	1,499,117	3,962,330	77,439	..
" " 1885	401,393	841,895	430,561	1,673,849	1,653,706	4,313,223	123,086‡	..
" " 1886	410,639	882,618	514,728	1,807,985	1,644,706	4,943,270	134,534	..
" " 1887	434,237	790,063	992,633	2,216,933	1,885,001	5,620,747	113,072	..
" " 1888	433,832	795,067	511,594	1,740,493	1,819,787	5,812,803	18,635	191,687
" " 1889	445,929	676,428	316,139	1,438,496	1,560,605	5,892,050	10,495	273,289
" " 1890	460,303	707,725	206,688	1,374,716	1,476,540	5,978,059	9,676	319,603§
" " 1891	463,581	662,765	236,902	1,363,248	1,381,320	6,042,693	4,317	367,715
" " 1892	488,824	693,206	214,124	1,396,244	1,400,467	6,081,934	4,245	449,532
" " 1893	508,157	709,676	340,538	1,558,371	1,482,548	6,203,869	3,465	525,173
" " 1894	551,412	681,831	623,038	1,856,281	1,589,124	6,614,824	2,685	547,679

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* The figures for the Drainage and Harbour Boards included in this table are for the calendar years ended three months previous to the financial years.

† Not including balances, contractors' deposits returned, amounts paid to sinking funds and for redemption of debentures.

‡ On the 30th June.

§ In February.

The indebtedness of the local bodies, outside moneys repayable to the General Government by instalments under "The Roads and Bridges Construction Act, 1882," and moneys advanced under "The Government Loans to Local Bodies Act, 1886," has thus increased during the period included in the table from about three to more than six and half millions sterling, and in the ten years, April, 1834, to March, 1894, from £3,962,330 to £6,614,824.

Of the total indebtedness in March, 1894, the debt of the Harbour Boards formed the largest item, £3,610,450, while the Borough Councils owed £2,738,184. It will be seen from the table following (p. 235) that the accrued sinking funds for all loans of local bodies amounted to £432,880, leaving a net indebtedness of £6,181,944, exclusive of the sums owing to the General Government, and that the total annual charge for interest and sinking fund stood at £393,934.

In a third table (p. 236) will be found a classification of the amounts raised by loan, according to the rates of interest paid, distinguishing loans raised in the colony from those raised abroad. It will be noticed that the amount raised abroad (£5,416,050) is nearly five times as great as that raised in New Zealand (£1,198,774). The lowest rate of interest paid was 3 per cent. (this is a 6 per cent. rate temporarily reduced), but the large sum of £2,982,989 was raised at 5 per cent., and £2,620,030 at 6 per cent., while £222,810 bore interest as high as 7 per cent.

A summary of all the transactions for the year 1893–94 is subjoined (p. 238). The total revenue of the local bodies for the financial year was £1,233,243, and they further received a sum of £623,038 which could not properly be termed "revenue," making altogether a grand total of receipts amounting to £1,856,281. The rates formed nearly 45 per cent. of the revenue proper. Licenses, rents, and other sources yielded 44 per cent., and 11 per cent. was granted by the General Government.

The expenditure of the local bodies amounted to £1,589,124. In the counties the cost of management, including salaries, travelling-expenses, rent, printing and advertising, collection of rates or tolls, legal expenses, and sundries, was £41,700 out of a total expenditure of £378,318. The boroughs expended in the same way £44,229 out of £531,736; and the Road Boards £19,293 out of £212,753. The percentages borne by the cost of management to the total receipts and total expenditure were,—

	Cost of Management per Cent. of Total Receipts.	Total Expenditure.
Counties	11·6	11·0
Boroughs	6·6	8·3
Road Boards	9·6	9·1

LOANS OF LOCAL BODIES.—NET INDEBTEDNESS, 1894, AND ANNUAL CHARGE.

—	Amount of Debentures and Stock in Circulation.	Amount of Accrued Sinking Fund.	Net Indebtedness.	Annual Charge (excluding Exchange and Commission).		
				Interest.	Sinking Fund.	Total.
	£	£	£	£	£	£
Counties	11,010	209	10,801	701	80	781
Boroughs	2,738,184	243,712	2,494,472	152,699	11,312	164,011
Town Boards	1,211	..	1,211	76	..	76
Road Boards	8,089	117	7,972	503	28	531
River Boards	45,880	5,663	40,217	2,551	889	3,440
Harbour Boards	3,610,450	166,895	3,443,555	188,605	22,490	211,095
Drainage Board	200,000	16,254	183,716	12,000	2,000	14,000
Totals	6,614,824	432,880	6,181,944	357,135	36,799	393,934
Inscribed debt of local bodies under "The Government Loans to Local Bodies Act, 1886" (including inscribed stock exchanged for debentures under "The Roads and Bridges Construction Act, 1882"	547,679	..	547,679*	..	..	31,778†
Outstanding debentures under "The Roads and Bridges Construction Act, 1882"	2,685	..	2,685	..	..	780‡
Totals	7,165,188	432,880	6,732,308	..	..	426,492

* Repayable by twenty-six annual instalments, each representing 5 per cent. per annum on the principal sum inscribed.
† Being 5 per cent. on £635,563, the amount advanced. ‡ Amount for 1893-94.

LOANS OF LOCAL BODIES RAISED WITHIN AND WITHOUT THE COLONY.

TABLE showing the Amount of Indebtedness of Counties, Boroughs, Town, Road, and River Boards, as on the 31st March, 1894, and of Harbour and Drainage Boards as on the 31st December, 1893, classified according to the Rates of Interest paid, distinguishing Loans raised in the Colony from those raised elsewhere. (See note.§)

Local Bodies.	3 %	4 %	4½ %	5 %	5¼ %	5½ %	5¾ %	6 %	6¼ %	6½ %	7 %	8 %	Total.
Loans raised in the Colony.													
	£	£	£	£	£	£	£	£	£	£	£	£	£
Counties	..	..	..	2,000	..	..	..	3,000	..	..	6,010	..	11,010
Boroughs	..	..	..	73,889	18,000	62,000	11,000*	297,295	..	3,100	136,650	600	627,534†
Town Boards	..	..	..	..	..	..	..	711	..	500	..	..	1,211
Road Boards	..	..	..	..	..	..	..	5,589	..	1,500	1,000	..	8,089
River Boards	..	..	..	4,000	..	..	..	12,085	3,320	2,975	2,500	..	24,880
Harbour Boards	15,650‡	..	10,000	453,800	..	32,500	..	3,000	..	10,450	650	..	526,050
Total	15,650‡	..	10,000	533,689	18,000	94,500	11,000	321,680	3,320	18,525	146,810	600	1,198,774
Loans raised outside the Colony.													
Boroughs	..	..	242,400	743,200	..	..	..	1,050,750	..	..	74,300	..	2,110,650
River Boards	..	..	..	21,000	..	..	..	..	..	..	..	..	21,000
Harbour Boards	..	250,000	100,000	1,685,100	..	..	..	1,047,600	..	..	1,700	..	3,084,400
Drainage Board	..	..	..	..	..	..	..	200,000	..	..	..	..	200,000
Total	..	250,000	342,400	2,449,300	..	..	..	2,298,350	..	..	76,000	..	5,416,050
Total Loans raised.													
Counties	..	..	..	2,000	..	..	..	3,000	..	..	6,010	..	11,010
Boroughs	..	..	242,400	817,089	18,000	62,000	11,000*	1,348,045	..	3,100	210,950	600	2,738,184†
Town Boards	..	..	..	..	..	..	..	711	..	500	..	..	1,211
Road Boards	..	..	..	..	..	..	..	5,589	..	1,500	1,000	..	8,089
River Boards	..	..	..	25,000	..	..	..	12,085	3,320	2,975	2,500	..	45,880
Harbour Boards	15,650‡	250,000	110,000	2,138,900	..	32,500	..	1,050,600	..	10,450	2,350	..	3,610,450
Drainage Board	..	..	..	..	..	..	..	200,000	..	..	..	..	200,000
Total loans raised	15,650‡	250,000	352,400	2,982,989	18,000	94,500	11,000	2,620,030	3,320	18,525	222,810	600	6,614,824§

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* Including £2,000 at 5·7 per cent. † Including also £25,000 on which no interest was paid. ‡ Temporarily reduced from 6 per cent. to 3 per cent.
§ Not including loans, amounting to £550,364, repayable by annual instalments under "The Roads and Bridges Construction Act 1882," and "The Government Loans to Local Bodies Act, 1886."

The details of amounts received, representing Government support to the various bodies, are stated in the following table:—

LOCAL GOVERNING BODIES.—RECEIPTS FROM GOVERNMENT, 1893-94.

—	Counties.	Boroughs.	Town Boards.	Road Boards.	River Boards (excluding Inch-Clutha also Road Board).	Harbour Boards (less New River, included in Boroughs)	Drainage Board.	Totals.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Rates on Crown and Native lands	93 15 6	105 7 3	...	92 9 10	15 9 2	...	...	307 1 9
One-third receipts from land sold on deferred payment and from perpetual leases	16,721 15 5	...	19 10 3	20,003 2 2	...	...	...	36,744 7 10
One-fourth of rents from small grazing-runs ...	2,951 1 7	...	...	347 12 3	...	...	...	3,298 13 10
Goldfields revenue and gold duty	14,884 4 9	1,159 19 2	41 7 10	146 12 4	...	...	...	16,232 4 1
Subsidies under the Local Bodies' Finance and Powers Act	35,990 9 3	11,501 12 7	687 12 6	18,027 8 11	...	...	...	66,207 3 3
Fees and fines under the Financial Arrangements Act, and other receipts	386 2 7	448 18 8	205 1 10	4,026 15 7	300 11 6	6,114 1 11	...	11,481 12 1
Total Revenue Account	71,027 9 1	13,215 17 8	953 12 5	42,644 1 1	316 0 8	6,114 1 11	...	134,271 2 10
Loans under Government Loans to Local Bodies Act	43,693 3 9	4,390 0 0	300 0 0	39,422 10 0	...	...	...	87,805 13 9
Grants for special works	31,252 0 6	2,774 10 5	...	99 17 6	...	...	...	34,126 8 5
Total loans and grants from Government	74,945 4 3	7,164 10 5	300 0 0	39,522 7 6	...	...	...	121,932 2 2
Total receipts from Government...	145,972 13 4	20,380 8 1	1,253 12 5	82,166 8 7	316 0 8	6,114 1 11	...	256,203 5 0

LOCAL GOVERNING BODIES.—RECEIPTS, EXPENDITURE, AND LOANS.

—	Financial Year ended 31st March, 1894.						Financial Year ended 31st December, 1893.		Totals—all Local Bodies.
	Counties.	Boroughs.	Town Boards.	Road Boards.	River Boards (excluding Inch-Clutha, also Road Board).	Totals.	Harbour Boards (less New River, included in Boroughs).	Drainage Board.	
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Receipts:—									
Revenue from—									
Rates	156,176 19 1	243,198 1 6	3,813 9 6	96,700 10 5	7,027 10 4	506,916 10 10	24,790 9 7	19,705 0 5	551,412 0 10
Rents, licenses, and other sources ...	38,949 5 3	185,882 15 4	7,785 19 11	12,739 7 9	3,621 4 11	248,978 13 2	291,931 4 8	907 11 11	541,817 9 9
Government	71,027 9 1	13,215 17 8	953 12 5	42,644 1 1	316 0 8	128,157 0 11	6,114 1 11	...	134,271 2 10
County	...	...	247 18 11	5,444 11 9	50 0 0	5,742 10 8	...	...	5,742 10 8
Total revenue ...	266,153 13 5	442,296 14 6	12,801 0 9	157,528 11 0	11,014 15 11	889,794 15 7	322,835 16 2	20,612 12 4	1,233,243 4 1
Receipts not revenue ...	93,947 9 10	223,481 3 4	491 11 3	43,714 12 0	22 5 0	361,657 1 5	261,380 15 10	...	623,037 17 3
Total receipts ...	360,101 3 3	665,777 17 10	13,292 12 0	201,243 3 0	11,037 0 11	1,251,451 17 0	584,216 12 0	20,612 12 4	1,856,281 1 4
Expenditure:—									
Public works	266,344 6 2	195,305 6 0	8,961 1 7	154,531 8 0	5,585 16 0	630,727 18 3	181,373 5 3	5,358 8 6	817,459 12 0
Charitable aid and hospitals...	20,151 18 2	23,215 9 11	229 6 5	8,858 7 3	...	61,455 1 9	...	...	61,455 1 9
Management	41,700 1 0	44,228 15 10	2,215 4 10	19,292 19 5	1,164 10 7	108,601 11 8	241,579 17 4	12,330 15 6	710,200 11 6
Other expenditure ...	41,121 10 8	268,905 11 2	1,769 16 4	30,069 19 7	5,740 9 3	347,607 7 0			
Total expenditure ...	378,317 16 0	531,736 2 11	13,175 9 2	212,752 14 9	12,490 15 10	1,148,481 18 8	422,953 2 7	17,689 4 0	1,589,124 5 3
Liabilities (including loans)	497,048 19 5	2,996,446 13 4	5,007 3 3	332,914 8 6	57,518 15 8	3,888,936 0 2	3,715,500 6 7	210,089 2 7	7,814,615 0 4
Loans*	11,010 0 0	2,738,184 0 0	1,211 0 0	8,080 0 0	45,880 0 0	2,804,374 0 0*	3,610,450 0 0	200,000 0 0	6,614,824 0 0

* Not including loans amounting to £550,364 repayable by instalments under "The Roads and Bridges Construction Act, 1882," and "The Government Loans to Local Bodies Act, 1886."

NOTE.—The return of receipts and expenditure in this summary represents the net receipts and expenditure of the year, exclusive of credit and debit balances, bank overdrafts, deposits, amounts paid to sinking funds, and for redemption of debentures.

The total value of real property in the colony, according to returns furnished by the local bodies, amounted in March, 1894, to £122,749,533. This includes £112,093,627, value of rateable property, and £9,424,493 value of unoccupied Crown and Native lands which are not rateable. For six counties, however, where there are no local bodies raising revenue, the value of property is shown below in one amount — £1,231,413 — without separating the unoccupied Crown and Native lands from those that are rateable.

Some of the boroughs and town districts rate on a capital value, but most of them upon an annual value of property. In the succeeding statement the capital value has, where necessary, been computed at 16·6 times the annual value.

In case of the boroughs, the Act under which the valuation is made provides for a reduction from the renting-value of 20 per cent. on houses and buildings, and 10 per cent. on land. The actual annual value of the properties will, therefore, be greater than the rating value by 11 to 25 per cent.

VALUE OF RATEABLE PROPERTY IN COUNTIES AND BOROUGHS, 1894.

Local Governing Bodies.	Rateable Property.	Unoccupied Crown and Native Lands.	Total.
	£	£	£
Boroughs	3,605,075	†	3,605,075
Boroughs (annual value, £2,128,842,[*] capitalised at 6 per cent.) ..	35,480,700	†	35,480,700
Counties—			
Road districts	41,215,720	2,371,458	43,587,178
Town districts	884,086	26,765	910,851
Town districts (annual value, £31,471,[*] capitalised at 6 per cent.)	517,182	7,334	524,516
Outlying	30,390,864 1,231,413[‡]	7,018,936	38,641,213
Totals	112,093,627 1,231,413[‡]	9,424,493	122,749,533

Here the total value of property in counties amounts to £83,663,758, and that in boroughs to £39,085,775.

By a general valuation of land (including tenements, buildings, and hereditaments), with all improvements, made under "The Land and Income Assessment Act, 1891," in November of that year, the following results were arrived at. The value of the improvements is shown distinct from that of the unimproved lands. All land is included, whether occupied or unoccupied, whether belonging to companies or private persons, local bodies, Natives, or the Crown.

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[*] By "The Rating Act, 1876," "the 'rateable value' of any property means the rent at which such property would let from year to year, deducting therefrom 20 per centum in case of houses, buildings, and other perishable property, and 10 per centum in case of land and other hereditaments, but shall in no case be less than 5 per centum on the value of the fee-simple thereof."

[†] Not returned.

[‡] Aggregate value in Counties of Rotorua, East Taupo, West Taupo, Kawhia, and Sounds. In these counties there are no local bodies raising revenue, consequently the respective values of rateable and other property are not distinguished.

VALUE OF PROPERTY: ASSESSMENT UNDER LAND AND INCOME ASSESSMENT ACT, NOVEMBER, 1891.

Counties and Boroughs.	Actual Value, including Improvements.	Value of Improvements.	Unimproved Value.
	£	£	£
Counties	85,818,167	27,922,735	57,880,233
Boroughs	36,406,862	18,442,562	17,907,662
Totals	122,225,029	46,365,297	75,787,895

Since 1891 the total value of property in boroughs has been increased by the constitution of new boroughs, and that of the counties correspondingly reduced. This will account for the increase in the town and the decrease in the county property shown in the local bodies' returns for March, 1894.

The figures for the North and Middle Islands, according to the above assessment, together with the results of the previous assessment made in 1888, are reproduced as being still interesting, and as affording a good index of the progress of the colony:—

	1888.	1891.	Increase.
	£	£	£
North Island ..	49,607,873	57,441,115	7,833,242
Middle Island ..	61,529,841	64,783,914	3,254,073
Totals ..	111,137,714	122,225,029	11,087,315

The annual and capital values of rateable property in town districts (1894) were as follow:—

Town Districts.	Annual Value of Property.	Capital Value of Property.	Town Districts.	Annual Value of Property.	Capital Value of Property.
	£	£		£	£
Kamo ..	..	16,934	Taradale ..	..	81,611
Whangarei ..	..	48,021	Ormondville ..	2,425	..
Helensville ..	3,153	..	Waipawa ..	6,391	..
Papakura ..	1,501	..	Kaikora North	2,252	..
Te Aroha ..	3,025	..	Featherston ..	..	44,247
Te Awamutu ..	..	20,602	Johnsonville ..	..	45,848
Kihikihi ..	..	13,189	Havelock ..	..	17,242
Ngaruawahia ..	..	13,206	Amberley ..	2,269	..
Opotiki ..	..	32,785	Southbridge ..	..	36,213
Raleigh (Waitara)	..	30,402	Hampstead ..	..	59,113
Opunake ..	..	24,117	Tinwald ..	..	46,559
Inglewood ..	..	14,171	Geraldine ..	..	39,177
Stratford ..	..	48,264	Temuka ..	..	54,800
Normanby ..	..	13,560	Arowhenua ..	..	22,666
Manaia ..	..	24,719	Grey (now Allanton)	..	7,971
Waverley ..	..	21,327	Outram ..	..	28,704
Lethbridge (Turakina)	1 601	..	Clinton ..	1,556	..
Bull's ..	3,607	..	Mataura ..	..	49,632
Halcombe ..	1,700	..	Wyndham ..	1,991	..
Clyde (Wairoa)	..	43,202	Otautau ..	..	12,569

The names of the various boroughs, and the value of the rateable property in each returned by these bodies, as on the 31st March, 1894, were:—

Name of Borough.	Estimated Annual (or Renting) Value of Rateable Property in March, 1894.	Total Value of Rateable Property, March, 1894.
	£	£
Birkenhead	5,230	..
Devonport	18,384	..
Auckland	299,514	..
Newton	15,689	..
Newmarket	10,533	..
Parnell	24,779	..
Onehunga	15,460	..
Thames	28,612	..
Hamilton	6,887	..
Cambridge	4,642	..
Tauranga	..	56,322
Gisborne	26,720	..
New Plymouth	21,890	..
Hawera	9,719	..
Patea	5,048	..
Wanganui	37,700	..
Marton	9,847	..
Feilding	14,340	..
Palmerston North	..	528,250
Foxton	6,972	...
Napier	81,268	..
Hastings	28,294	..
Danevirke	7,031	..
Woodville	9,980	..
Pahiatua	7,372	..
Masterton	26,551	..
Carterton	..	86,401
Greytown	7,925	..
Lower Hutt	..	233,298
Petone	17,400	..
Onslow (1893)	..	118,504
Wellington	339,443	..
Karori	..	117,682
Melrose	..	203,806
Picton	..	76,598
Blenheim	26,976	..
Nelson	55,025	..
Richmond	..	83,705
Westport	20,772	..
Greymouth	22,179	..
Brunner	9,582	..
Kumara	4,500	..
Hokitika	13,840	..
Ross	3,460	..
Rangiora	..	156,468
Kaiapoi	9,281	..
Christchurch	194,434	..
Linwood	..	429,331
St. Albans	..	520,787
Sydenham	..	675,804
Woolston	..	176,286
Sumner	7,122	..
Lyttelton	23,523	..
Akaroa	..	44,784
Ashburton	18,150	..
Timaru	34,058	..
Waimate	6,851	..
Oamaru	32,470	..
Hampden	..	10,979
Palmerston South	..	42,930
Hawkesbury	..	43,140
Port Chalmers	11,836	..
North-east Valley	17,876	..
Maori Hill	10,871	..
West Harbour	9,374	..
Dunedin	245,205	..
Roslyn	26,883	..
Mornington	27,316	..
Caversham	28,934	..
St. Kilda	8,939	..
South Dunedin	19,642	..
Green Island	3,306	..
Mosgiel	7,900	..
Milton	5,746	..
Kaitangata	7,124	..
Balclutha	5,410	..
Lawrence	7,864	..
Roxburgh	1,470	..
Tapanui	2,501	..
Naseby	2,715	..
Cromwell	3,281	..
Alexandra	1,283	..
Arrowtown	2,600	..
Queenstown	4,969	..
Gore	14,010	..
Winton	2,100	..
Invercargill	51,213	..
North Invercargill	3,816	..
East Invercargill	3,671	..
South Invercargill	5,594	..
Avenal	1,738	..
Gladstone	2,340	..
Campbelltown	6,928	..
Riverton	4,334	..

The road districts, grouped according to the counties in which they are situated, with the value of property in each, are shown hereunder :—

County and District.	Property in District. £
Mongonui—	
Oruaiti	17,180
Oruru	44,593
Whangaroa (no road districts).	
Bay of Islands (no road districts).	
Hokianga (no road districts).	
Hobson (no road districts).	
Whangarei—	
Hikurangi	13,034
Kaurihohore	13,119
Kensington	21,424
Maungakaramea	18,279
Maunu	47,176
Otonga	11,947
Otonga East	18,022
Parua Bay	21,712
Ruarangi	9,891
Waikiekie	20,636
Waipu North	21,419
Whareora	8,677
Otamatea—	
Mangawai	22,112
Matakohe	25,986
Rodney—	
Ahuroa	5,161
Albertland North	8,224
Albertland South	25,077
Komokoriki	12,200
Mahurangi East	10,733
Mahurangi Lower	*
Mahurangi Upper	59,872
Mainene	8,087
Matakana East	8,941
Matakana West	13,670
Omaha	38,948
Puhoi	31,038
Tauhoa	19,560
Wharehine	12,744
Waitemata—	
Kaukapakapa	47,364
Pukeatua	36,350
Whangaparaoa	7,911
Eden—	
Arch Hill	85,665
Avondale	86,500
Eden Terrace	88,599
Epsom	141,275
Eden—*continued.*	
Mount Albert	146,628
Mount Eden	301,317
Mount Roskill	105,340
Mount Wellington	149,847
One-tree Hill	170,734
Panmure Township	13,600
Point Chevalier	109,388
Remuera	396,755
Tamaki West	92,573
Manukau—	
Awhitu	29,416
Howick Town	9,800
Hunua	20,508
Karaka	22,323
Mangere	173,507
Manurewa	29,582
Maraetai	10,100
Mauku	44,625
Maungatawhiri	28,804
Mercer Township	15,870
Opaheke	41,410
Opaheke North	33,167
Otahuhu	58,675
Pakuranga	48,420
Papakura	40,534
Paparata	37,652
Paparoa	10,230
Papatoitoi	50,850
Pokeno	35,531
Pollok Settlement	10,784
Pukekohe East	87,246
Pukekohe West	116,375
Tamaki East	93,699
Turanga	21,746
Waipipi	87,714
Wairoa South	80,166
Waiuku	53,234
Coromandel (no road districts).	
Thames (no road districts).	
Ohinemuri (no road districts).	
Piako—	
Matamata	68,454
Taotaoroa	42,623
Waitoa	250,492
Waikato—	
Cambridge	114,270
Kirikiriroa	326,535
Tamahere	64,267

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* No Board.

County and District.	Property in District. £
Waipa—	
Newcastle	63,529
Pukekura	126,072
Rangiaohia	70,187
Tuhikaramea	18,805
Raglan—	
Karamu	*
Onewhero	10,021
Pirongia	22,832
Te Akau	*
Whaingaroa	26,320
Kawhia (no road districts).	
West Taupo (no road districts).	
East Taupo (no road districts).	
Rotorua (no road districts).	
Tauranga—	
Katikati	35,000
Te Puke	67,780
Te Puna	48,542
Whakatane—	
Opotiki	128,030
Whakatane	93,900
Waiapu (no road districts).	
Cook—	
Kaiti	46,500
Ngatapa	244,154
Ormond	68,628
Patutahi	143,603
Pouawa	80,200
Poverty Bay	184,626
Te Arai	208,989
Waikohu	262,297
Waimata	128,052
Whataupoko	92,000
Clifton (no road districts).	
Taranaki—	
Barrett	25,675
Carrington	18,511
Egmont	63,368
Elliot	14,313
Frankley	17,750
Henui	28,484
Hurford Upper	6,031
Mangorei	24,818
Moa	166,790
Oakura	42,113

County and District.	Property in District. £
Taranaki—*continued.*	
Okato	43,983
Omata	29,801
Parihaka	231,227
Tataraimaka	23,922
Waitara West	86,747
Waiwakaiho	30,233
Stratford—	
Manganui	97,074
Hawera—	
Waimate	690,997
Patea—	
Kohi	49,995
Motoroa	23,384
Okotuku	51,172
Patea East	121,500
Patea West	186,199
Wairoa	48,862
Waitotara-Momohaki ..	91,532
Whenuakura-Waitotara ..	124,539
Waitotara (no road districts).	
Wanganui—	
Kaitoke	114,382
Kaukatea	77,920
Mangawhero	503,306
Purua	159,981
Upper Wangaehu ..	250,880
Rangitikei (no road districts).	
Oroua—	
Fitzherbert	288,751
Manawatu	594,014
Manchester	751,260
Pohangina	201,957
Kiwitea—	
Kiwitea	363,675
Manawatu (no road districts).	
Horowhenua—	
Otaki	182,350
Te Horo	164,318
Wirokino	517,017
Wairoa (no road districts).	
Hawke's Bay (no road districts).	

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* No Board.

County and District.	Property in District. £
Waipawa—	
Danevirke	299,328
Kumeroa	106,123
Maharahara	61,313
Maungaatua	81,860
Norsewood	128,544
Ruataniwha	223,487
Ruataniwha North	278,871
Takapau	186,112
Waipawa	60,492
Waipukurau	292,630
Woodville	117,280
Patangata—	
Oero	290,163
Patangata	149,993
Porangahau	294,664
Tamumu	510,024
Wallingford	341,092
Wanstead	126,140
Weber	116,519
Pahiatua (no road districts).	
Wairarapa North—	
Akiteo	209,772
Castlepoint	286,370
Eketahuna	165,679
Masterton	653,074
Mauriceville	94,867
Upper Taueru	86,196
Wairarapa South—	
Featherston	1,126,336
Taratahi-Carterton	682,195
Hutt—	
Makara	80,594
Seatoun	34,108
Sounds (no road districts).	
Marlborough—	
Awatere	555,335
Omaka	313,651
Pelorus	234,862
Picton	154,394
Spring Creek	159,860
Wairau	377,210
Kaikoura (no road districts).	
Collingwood—	
Collingwood	127,059
Takaka	153,202
Waimea—	
Dovedale	30,753
Motueka (1893)	90,879
Moutere Upper	32,019
Riwaka	79,631
Stoke	234,090
Suburban North	98,030
Waimea West	76,800
Buller (no road districts).	
Inangahua (no road districts).	
Grey (no road districts).	
Westland (no road districts).	
Amuri (no road districts).	
Cheviot—	
Cheviot (no Board)	485,280
Ashley—	
Ashley	297,330
Cust	119,216
Eyreton	388,106
Eyreton West	190,150
Kowai	491,866
Mandeville and Rangiora	602,846
Oxford	366,878
Waipara	1,165,657
Selwyn—	
Avon	590,000
Courtenay	769,782
Ellesmere	1,214,034
Halswell	303,646
Heathcote	398,613
Lake Coleridge	225,276
Lincoln	331,152
Malvern	138,030
Malvern East	112,521
Malvern South	83,986
Rakaia	359,083
Riccarton	830,251
Spreydon	140,356
Springs	508,310
Taitapu	98,070
Templeton	369,121
Upper Waimakariri	81,359
Akaroa—	
Akaroa and Wainui	310,464
Le Bon's Bay	71,724
Little River	307,236
Okain's Bay	99,344
Pigeon Bay	109,017
Port Levy	107,226
Port Victoria	76,847

County and District.	Property in District. £
Ashburton—	
Anama	43,877
Ashburton Upper	568,711
Coldstream	204,037
Longbeach	471,071
Mount Hutt	715,931
Mount Somers	267,855
Rangitata	334,304
South Rakaia	504,806
Wakanui	393,808
Geraldine—	
Geraldine	490,446
Levels	1,529,403
Mount Peel	412,597
Temuka	700,690
Mackenzie (no road districts).	
Waimate (no road districts).	
Waitaki (no road districts).	
Waihemo (no road districts).	
Waikouaiti (no road districts).	
Peninsula—	
Otago Heads	33,502
Peninsula	197,335
Portobello	145,334
Tomahawk	31,970

County and District.	Property in District. £
Taieri (no road districts).	
Bruce—	
Balmoral	225,382
Inch - Clutha (Road and River)	68,343
Mount Stuart	109,563
Clutha (no road districts).	
Tuapeka (no road districts).	
Maniototo (no road districts).	
Vincent (no road districts).	
Lake (no road districts).	
Southland—	
Invercargill	*
Knapdale	249,220
Lindhurst	168,000
Otaraia	145,461
Oteramika	269,264
Tuturau	135,855
Waimumu	195,779
Wyndham	73,441
Wallace (no road districts).	
Fiord (no road districts).	
Stewart Island (no road districts).	

LICENSES AND LICENSED HOUSES.

During the year ended the 31st March, 1894, 2,729 licenses for the sale of intoxicating liquors were granted. Of these, 1,719 were publicans' and accommodation licenses, 5 New Zealand wine, 49 bottle, 56 packet, 139 wholesale, and 761 conditional licenses. The fees paid for these licenses amounted to £60,740, and formed part of the revenue of the local governing bodies of the districts in which they were issued. Particulars are given in the following table:—

NUMBER OF LICENSES GRANTED DURING THE YEAR 1893–94, AND THE AMOUNT OF FEES PAID TO LOCAL BODIES THEREFOR.

Licenses.	In Counties.	In Boroughs.	Total.
Publicans' licenses	696	757	1,453
Accommodation licenses	263	3	266
Total licensed houses	959	760	1,719
New Zealand wine licenses	1	4	5
Bottle licenses	1	48	49
Packet licenses	13	43	56
Wholesale licenses	9	130	139
Conditional licenses	553	208	761
Total licenses granted	1,536	1,193	2,729
	£ s. d.	£ s. d.	£ s. d.
Amount of license-fees paid to local bodies	22,412 1 8	38,328 11 10	60,740 13 6

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* No Board.

The average number of persons to each licensed house in counties and boroughs respectively is next shown.

LICENSED HOUSES, 1893–94: PROPORTION TO POPULATION.

	Number of Licensed Houses.*	Population.	Average Number of Persons to each Licensed House.
Counties	959	365,627	381
Boroughs	760	306,904	403
Totals	1,719	672,531†	391

The annual fees paid for licenses are—

	£
(1.) For a publicans' license	
(a.) Within the limits of a borough or town distict	40‡
(b.) Outside the aforesaid limits	25
(2.) For a New Zealand wine license	1
(3.) For an accommodation license, a sum to be determined by the Licensing Committee, not exceeding	20
(4.) For a bottle license	40
(5.) For a packet license—	
(a.) For a vessel exceeding 50 tons register..	10
(b.) For a vessel not exceeding 50 tons register	5
(6.) For a wholesale license	20
(7.) For a conditional license, according to duration of license, a sum not exceeding	30

LOCAL-OPTION POLL.

Under "The Alcoholic Liquors Sale Control Act, 1893," each electoral district constituted for the election of a member of the House of Representatives is a licensing district, and the electors for the House of Representatives are also electors under the Licensing Acts.

The local-option poll is taken at the same time as the election of the Licensing Committee, and the questions for the decision of the voters as regards publicans', accommodation, and bottle license respectively are—

(1.) Whether the present number of licenses is to continue.
(2.) Whether the number is to be reduced.
(3.) Whether any licenses whatever are to be granted.

The first and second questions are decided in the affirmative by an absolute majority of the votes recorded, but to carry prohibition three-fifths of the total votes recorded must be given against granting any licenses. When prohibition is not carried, the votes in its favour are to be credited in favour of reduction.

These results are, however, subject to the condition that at least half the voters on the roll record their votes. Should such not be the case the poll is void and matters are to continue as they were.

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* *I.e.*, houses holding publicans' or accommodation licenses.

† Excluding (4,218) population on shipboard and adjacent islands.

‡ Between the hours of six in the morning and ten at night. For an eleven o'clock license an additional £5 must be paid.

A Bill now before Parliament will, if passed, probably modify the questions to be submitted to the electors for decision.

For the local-option poll taken in March, 1894, it was found impossible to obtain strictly accurate returns of the results of the elections and polls from all the returning-offices, but the following table is substantially correct:—

Number of electors on the rolls[*]	248,194
Number of men who voted at election of Committees..	71,763
" women who voted at election of Committees	45,022
Total number of voters	116,785
Number of men who voted at local-option poll ..	74,372
" women who voted at local-option poll ..	47,862
Total number of voters	122,234
Number of districts in which the poll was declared void	33
Number of districts in favour of reduction	14
" " no alteration ..	12
" " no licenses	1
" in which no proposal was carried ..	2
Total number of districts	62

Clutha is the one district which carried prohibition.

Publicans' Licenses.

Number of votes in favour of continuance of present number	42,429
Number of votes in favour of a reduction	16,096
" " no licenses	48,993
Total	107,518

Accommodation Licenses.

Number of votes in favour of continuance of present number	31,342
Number of votes in favour of reduction of present number	9,823
Number of votes in favour of no accommodation licenses	35,442
Total	76,607

FIRE-BRIGADES.

On the 31st December, 1894, there were 80 fire-brigades in the colony, with a total strength of 1,473 (235 officers and 1,238 men). Compared with the numbers in 1893, these figures show an increase of 6 brigades, 21 officers, and 89 men. Of the 80 brigades now existing, 61 belong to the United Fire-brigades Association of New Zealand, which has a membership of about 1,300.

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[*] Many had been struck off for not voting at the recent general election for Parliament.

The sixteenth annual meeting of the association, at which 52 brigades were represented, was held at Hokitika on the 12th March, 1895, the balance-sheet showing a credit balance of £345.

An Accident Assurance Society, registered under the Friendly Societies Act, has been established in connection with the association, which provides for an allowance of 30s. per week if a member be incapacitated from following his usual employment by accident happening to him whilst on duty as a fireman, and for payment of £50 if he be totally disabled or killed.

At the third annual meeting of delegates held on the 12th March last, the report showed that the receipts for contributions and interest amounted to £98 18s. 10d., and the claims paid for accidents during the year were four, the benefits amounting to £24.

The total number of members belonging to the society is 502, and there is a cash balance of £288 5s.

The "Fire and Ambulance Record," a paper devoted to fire-brigade matters, is published monthly at Napier, and is the official organ of the New Zealand Fire-brigades Association.

CO-OPERATIVE PUBLIC WORKS.

Remarks on the co-operative system of constructing public works were given in a special article in the Year-book of 1894. The numbers of workmen employed in this manner under Government departments during the first seven months of the year 1895 were :—

	Public Works Department.	Survey Department.	State Farm, Levin.	Total.
January	848	1,138	24	2,010
February	863	1,384	25	2,272
March	893	1,317	27	2,237
April	883	1,276	37	2,196
May	875	1,385	40	2,300
June	881	1,559	46	2,486
July	806	1,686	47	2,539

PART III.—ARTICLES ON SPECIAL SUBJECTS.

SECTION I.

THE LAND SYSTEM OF NEW ZEALAND.

By S. Percy Smith, F.R.G.S., Secretary for Crown Lands and Surveyor-General.

The Crown lands of New Zealand are administered under "The Land Act, 1892," and the regulations made thereunder.

The distinguishing features of the present land system are the outcome of ideas which have been gradually coming to maturity for some years past in this colony. These features involve the principle of State-ownership of the soil, with a perpetual tenancy in the occupier. This, whatever may be the difference in detail, is the prevailing characteristic of the several systems under which land may now be selected. In New Zealand, this tendency to State-ownership has taken a more pronounced form than in any other of the Australasian Colonies, and the duration of the leases has become so extended as to warrant the name, frequently given to them, of "everlasting leases." In point of fact, most of the Crown lands are now disposed of for terms of 999 years. The rentals are based on the assessed value of the land at the time of disposal, without increase or recurring valuations. Under this system there is a fixity of tenure practically equal to freehold, and which, like freehold, necessarily carries with it the power of sale, sub-lease, mortgage, or disposition by will. Since all lands held under the Crown "by lease in perpetuity" are subject to the land-tax, the necessity for the periodical revaluations under the perpetual-lease system is done away with, the State reaping the advantage of the unearned increment through the before-mentioned tax. At the same time the improvements made in the soil by cultivation, &c., are secured to the tenant.

The advantages of this system to the selector are manifest. When it is taken into consideration that, with few exceptions, the Crown lands are, in their prairie condition, incapable of producing anything until brought into cultivation, the advantage to the settler of setting free his capital to develop the capabilities of the soil, rather than having to expend it in the purchase of a freehold, is very apparent. One of the most striking benefits of this system is the advantage it gives to the poor man, who, with little more capital than his strong right arm, is enabled to make a home for himself; which, under the freehold system, he is frequently unable to accomplish.

The values placed on the Crown lands are, as a rule, low, for the State does not so much seek to raise a revenue directly therefrom as to encourage the occupation of the lands by the people; this secures indirectly an increased revenue, besides other advantages, resulting from a numerous rural population.

Again, underlying the whole of the New Zealand land system is a further application of the principle of "the land for the people," viz.: the restriction in area which any man may hold. This subject has been forced upon the attention of the Legislature by defects in former systems, under which one individual with means at his command could appropriate large areas, to the exclusion of his poorer fellow-settler. Under conditions where the price at which the land is offered is fixed, and where choice of selection is by ballot, the poor settler has the same chance as the rich one, and may, should he wish it, hold as much land. The limit that a selector may hold is so fixed as to encourage the class of small farmers, and up to that limit the amount he may select is left entirely to himself. The Act defines the amount of land any one may select at 640 acres of first-class, or 2,000 acres of second-class land, inclusive of any land he may already hold. These limits apply to lands which are thrown open for "free selection," as it is termed, but in some cases, where found desirable, the limit is by regulation made much smaller.

In addition to the many advantages offered by the "lease-in-perpetuity" system, the Land Act provides others, to meet the wants of different classes. The rule is almost invariable, that land thrown open for so-called "free selection" is offered to the public under three different tenures, and the choice left entirely to the would-be settler. The three tenures are:—

(1.) For cash, in which one-fourth of the purchase-money is paid down at once, and the remainder within thirty days. The title does not issue until certain improvements have been made on the land.

(2.) Lease with a purchasing clause, at a 5-per-cent. rental on the value of the land; the lease being for twenty-five years with the right to purchase at the original upset price at any time after the first ten years.

(3.) Lease in perpetuity, at a rental of 4 per cent. on the capital value, as already described above.

The present land-laws have been in force since the 1st November, 1892, and, therefore, the returns of the Department of Lands and Survey for the year ending the 31st March, 1895, will give a fair idea of the proportions in which lands are selected under the three tenures above described during the past two and a half years. The figures given below include the "special settlements," all of which must by law be held on lease in perpetuity:—

1. Selected for cash, 1,542; area, 110,570 acres.

2. Occupation with right of purchase, 1,060; area, 236,270 acres.
3. Lease in perpetuity, 3,224; area, 634,086 acres.

"The Land Act, 1892," provides for a special class of settlement which has found favour with the public to a very considerable extent during the last two years. This is known as the "small-farm association" system. It provides that, where not less than twelve individuals have associated themselves together for mutual help, such an association can, with the approval of the Minister of Lands, select a block of land of not more than 11,000 acres, but there must be a selector to each 200 acres in the block. The extreme limit that one person may hold is fixed at 320 acres. Settlements of this class are held on "lease in perpetuity" for 999 years, in the same way as lands under the same tenure when thrown open for free selection. The conditions of residence and improvement are the same. The system offers many advantages to the settler, so long as the blocks of land are judiciously chosen, having regard to quality of land, access, markets, and the probability of employment being obtained in the neighbourhood. In the eagerness to obtain lands on such easy terms, these points have, in the past, not received sufficient attention by some of the associations, and in consequence their success remains to be proved.

The following figures show the extent to which settlers have availed themselves of this class of settlement during the three years ending the 31st March, 1895; the figures represent approved applications only: 1,390 selectors have taken up 277,579 acres, in various parts of the colony, but principally in the Wellington district.

The "village settlement system" of New Zealand has become widely known in the Australian Colonies, and has excited much inquiry with a view to its adoption in other parts. It is believed, however, that this, and the "small-farm association" settlements referred to above, are often confounded in the minds of the public, for of recent years there has been no very great extension of village-settlements in this colony. (For details, see Mr. March's article, *post.*) The system was initiated in 1886 by the late Hon. John Ballance, with the intention of assisting the poorer classes to settle on the land. It became immediately very popular, and by its means a considerable number of people were settled on the land, who might otherwise never have become landholders. The features of the system were, originally, the possession of a small farm, not exceeding 50 acres in extent, held under a perpetual lease for terms of thirty years, with recurring valuations at the end of each term. The rental was 5 per cent. on a capital value of not less than £1 an acre. Residence and improvement of the soil were compulsory. The new and important feature in the village-settlement scheme, however, was the advance by the State of a sum not exceeding £2 10s. per acre, up to 20 acres, for the purpose of enabling the settler to cultivate the land, and of a further sum not exceeding £20 to build a house with, on which he paid interest at the rate of 5 per cent. Road-works were also very frequently undertaken in the neighbourhood of these settlements, and have been of very great help to the settlers. Under this system a number of settlements were formed, and, where the sites were chosen judiciously, a large measure of success has resulted therefrom.

The present law admits of similar village settlements, but the area which a selector may hold has been increased to 100 acres, and the tenure changed to a "lease in perpetuity" for 999 years, on a 4-per-cent. rental. Advances for clearing and house-building have, however, practically ceased, and, indeed, few settlements have lately been started, one of the principal reasons being the dearth of suitable lands on which to plant them. Crown lands adapted to the special features of "village settlements" are scarce.

A modification of the system has been introduced, however, which, so far as can be judged at present, will eventually, to a considerable extent, take its place. In order to find work for the unemployed, considerable areas of forest-clad Crown lands have been set aside, and small contracts for the clearing, burning, and sowing these with grass have been let. The intention is to subdivide all these areas into small farms, to be let on "lease in perpetuity," at a rental sufficient to cover the cost of clearing, &c., together with a fair rental of the land. Up to the 31st March, 1895, eighteen settlements have been allocated, covering an area of 21,202 acres, situated in various parts of the colony. At that date 193 settlers had been allotted sections, and they had felled 4,048 acres of bush, and grassed 1,469 acres. The amount paid to the settlers up the 31st March was £5,698, and the value of improvements on the land (including the Government advances) was £6,964.

The size of holdings averages about 100 acres.

With respect to other methods of dealing with the Crown estate, the "Digest of the Land-laws" appended hereto will give sufficient particulars

THE LAND FOR SETTLEMENTS ACTS, 1892 AND 1894.

Allusion has already been made to the dearth of Crown lands suitable for small settlements in localities where they are most needed, *i.e.*, in settled districts, where the lands are frequently held in large estates, whose owners employ a good deal of labour. Not only is this the case in many parts of the colony, but there is also a want of land where the sons of settlers can obtain farms, not far from the homes of their parents. To meet this want the Hon. J. McKenzie, the present Minister of Lands, introduced into the Legislature in the session of 1892 a Bill intituled "The Land for Settlements Act," which authorised the purchase from private individuals of suitable properties for subdivision into small farms not exceeding 320 acres in extent. Under the provisions of this Act several properties have been acquired, and subsequently divided into small farms and leased in perpetuity at a 5-per-cent. rental, on a capital value fixed at a sufficient rate to cover first cost, together with survey, administration, and roads (if required). The process of acquisition is as follows: Whenever a property is offered to the Government, if it is so situated as to meet the object of the Act, a report on it is obtained by a qualified Government officer, and, should his report be favourable, the question of purchase is then referred to a Board of Land-Purchase Commissioners, composed of three Government officers whose training and duties qualify them to advise the Government as to whether the purchase is a suitable one, and as to the price which should be given for the property. It is only on the advice of this Board that the Government acts. In nearly all cases the properties acquired have been improved farms, situated in settled districts, where the tenants have some chance of obtaining employment in the vicinity. The amount which may be expended per annum under the Act of 1892 was £50,000; but the Act of 1894 extended this amount to £250,000, and it also provided that the limit of land which might be selected should be the same as under "The Land Act, 1892." The Act also provides for the exchange of high-lying pastoral Crown lands for low-lying agricultural lands suitable for small holdings. A new feature was introduced into the Act of 1894—namely, the power of compulsory taking of lands in cases where the Board could not agree with the owner as to price, &c., and where the Governor in Council decides that the possession of the land for purposes of subdivision is otherwise desirable. The amount payable to the owner is decided by a Compensation Court with full powers. Up to the 31st March, 1895, thirteen estates had been purchased, or arranged for, at a cost of over £167,000, which covered an area of 43,923 acres. At the same date there were living on those estates which had been subdivided and selected 96 persons, in the place of a few shepherds or overseers, who only occasionally visited these places formerly. This extension of the provisions of the previous Act should prove beneficial in providing homes for a large class of persons, who, from inexperience or other reasons, are in a measure prohibited from occupying the waste lands of the Crown; and, moreover, as the properties acquired are all more or less improved, they seem to afford to the small-farmer class of the Old Country an opening for building up homes for themselves where their previous experience will be of use, instead of having to learn—often by sad experience—the methods adapted to a new and wild country.

Village-Homestead Settlements.

By J. E. March, Superintendent.

Very few subjects have occupied so much public attention, and there are few on which there has been such a diversity of opinion, as the village-homestead settlement scheme initiated by the late Hon. Mr. Ballance. Not only has this been the case in New Zealand, but beyond the colony as well. Thus, in the early part of 1891, the Hon. Mr. Copley, Commissioner of Crown Lands in South Australia, paid an official and special visit to New Zealand, the object being, as stated in his report, "to inquire into the working of the village-homestead special settlements, concerning which so many conflicting statements had been made in South Australia."

Again, at the end of 1893, the Hon. Mr. McIntyre, Commissioner of Crown Lands, Victoria, paid an official visit to this colony for the purpose of "inquiring into the system of land settlement, and inspecting the village settlements." In his report, dated Melbourne, 19th February, 1894, the Hon. Mr. McIntyre says: "From my personal observation, and from the information I was enabled to obtain through the documents placed at my disposal, I think I am perfectly justified in stating that the success of the village-settlement movement in New Zealand has been proved. It has got beyond the experimental stage; and the system, if I mistake not, is firmly grafted on the land-policy of that country. Any apprehensions which I may have entertained of the ultimate success of our Victorian village settlements have entirely disappeared in the light of the experience gained in New Zealand."

The plan of forming village settlements was first commenced in the Provincial District of Canterbury by the Hon. Mr. Rolleston. It was on a small scale, but it worked admirably. In 1874 and 1875, there was a difficulty in finding quarters or employment for immigrants, who had arrived in Canterbury in considerable numbers, and it was decided to try the experiment of settling them on the land in districts where they were likely to obtain work. The course adopted was briefly as follows: On the line of railway, or adjacent thereto, as at Rakaia, Orari, and Arowhenua, blocks of Government land were laid off into sections, varying in area from one quarter to five acres. Assistance was given to the extent of £10 towards the erection of a small hut or cottage. The terms of occupation were as follows: For the first year, rent free; and for the second and third years, a rental of 2s. per week was charged, to recoup the Treasury the amount advanced.

In the formation of some of these settlements, notably at Geraldine, Timaru, and Waimate, the idea was not to permanently locate the immigrants, on whose behalf the plan had been adopted, but merely allow them to occupy the land temporarily; and it was considered that in three years they would be enabled to find situations or places elsewhere. All traces of the settlements formed in the localities named have long since disappeared.

The land comprised in the village settlements formed at Rakaia, Arowhenua, Beaconsfield, and other districts in Canterbury, was sold to the original settlers on the deferred-payment system.

From 1876 to 1886, a period of ten years, very little was done in extending the system, but in the latter year the late Hon. Mr. Ballance, then Minister of Lands, introduced regulations for the formation of village-homestead special settlements. These were of a liberal character; and the assistance granted by way of loans for dwelling-houses, bush-felling, grassing, &c., enabled an industrious man to make and establish a comfortable home, while he was precluded from parting with the freehold.

A large number of settlements were thus formed, and, generally speaking, the settlers and their families have comfortable homes, and look healthy and contented; the financial results prove conclusively that the settlements are successful.

During the period from October, 1887, to January, 1891, no new village-homestead settlements were formed; on the contrary, it was decided early in 1888 to withdraw all the unselected sections in the settlements already formed from occupation under that system, and to open the land under ordinary conditions of settlement—namely, for cash, deferred payment, or perpetual lease.

The original system was again introduced by the Hon. Mr. McKenzie, Minister of Lands, in March, 1891, with a modification in the amount to be advanced, which was limited to a sum not exceeding £10, to assist a selector in the erection of a dwelling-house on his section.

Considerable progress has been made under the ordinary village system of land settlement, and during the past year 295 new selectors have taken up sections of land, representing an area in the aggregate of 7,616 acres. No monetary advances, however, have been made in these cases. Without doubt the system is one which fosters a spirit of independence, and habits of industry and self-help. It has had a most beneficial effect in the colony, having been the means of providing settled and comfortable homes for many people, who previously found that rent and the cost of living absorbed all their earnings.

The success, however, is best shown by the financial results. During the past year twenty-four new settlements have been formed —namely, seven in the North Island, and seventeen in the Middle Island. Two hundred and ninety-five new selectors have taken up sections of land representing, in the aggregate, 7,616 acres. The position of these settlements on the 31st March, 1895, was as under:—

Number of settlements in the colony	144
Number settled on the land, including wives and families	4,561
Area occupied (acres)	33,804
Amount advanced for cottages, bush-felling and clearing	£25,778
Amount paid by settlers as rent and interest from the commencement of the system ...	£17,620
Value of improvements now on the land ...	£92,834
And if the amount advanced is deducted, there remains as representing the value of the work done by the settlers	£67,056

These figures prove conclusively that the system is one to encourage and extend.

PURCHASE OF NATIVE LANDS BY GOVERNMENT.

From about the year 1823 (which is the date of the first recorded deed), until the 6th February, 1840, the date of the Treaty of Waitangi, lands in New Zealand were acquired by direct purchase from the Maoris by individual members of the white races. During the years 1837 to 1839, or about the time that it became probable that the sovereignty of the islands would be assumed by the Queen, the greater number of these purchases were made, and they extended to most parts of the country. These purchases are technically known as "the Old Land Claims," and their total number (including pre-emptive claims), as estimated by Commissioner F. Dillon Bell in 1862, was 1,376, covering an area of about 10,322,453 acres, out of which large area grants were recommended for 292,475 acres. These figures have been slightly added to since, but not to any very large extent. The large area shown above was reduced on survey to about 474,000 acres, situated principally to the north of Auckland. The difference between the amount granted and the total area surveyed became what are termed "surplus lands of the Crown." It was held that the Native title had been fully extinguished over the whole area surveyed; but, as by statute the claimants could only be granted 2,560 acres each, the balance became vested in the Crown on the assumption of the sovereignty, owing to the Native title having been fully extinguished.

In many cases the titles did not issue to those to whom the land was awarded, as they were compensated by scrip issued by the Government, with the understanding that such scrip was to be exercised in the purchase of Crown lands in the neighbourhood of Auckland, to which place it was desirable—so soon as the capital was founded—to draw a population. The lands thus paid for in scrip became Crown lands, and these, together with the surplus lands, have from time to time been disposed of and settled on. The amount of scrip, &c., issued up to 1862 was over £109,000.

On the signing of the Treaty of Waitangi on the 6th February, 1840, the pre-emptive right of purchase from the Maoris was ceded to the Queen, and consequently private purchase ceased. This remained the law until the passing of "The Native Land Act, 1862," when the Crown relinquished its right of pre-emption, whilst at the same time the purchase of Native lands for the Crown did not abate, but continued side by side with the private purchases up to the passing of "The Native Land Court Act, 1894."

From time to time since 1840 various sums were appropriated by Government or by Parliament for the acquisition of a Crown estate. Up to the date of passing of "The Native Land Act, 1862," these operations were conducted by officers of the Government specially appointed, who, from a knowledge of the Maoris, their customs and disposition, were successful in securing large areas of land for settlement. It must be conceded that their operations as a whole were successful, and that the number of disputed cases arising out of their labours was exceedingly small. The Waitara purchase is, however, here excluded, for there were reasons of general policy affecting that sale which did not prevail in other cases. This purchase was the ostensible cause of the war of 1860 and following years, but the motives which led to it were far deeper than the mere purchase of a few acres—there was a great principle at stake.

The difference effected in the mode of purchase by "The Native Land Act, 1862," was this: Previously, the title of the Maoris who were to receive payment for the land was decided by the Land Purchase officers; but the Act quoted set up a Court, presided over by able Judges, who determined the titles, which were afterwards registered in a special Court. Purchases have since been effected with the registered owners.

It is difficult to obtain figures showing the actual area acquired by the Crown from the Maoris up to 1870, but in round numbers it was 6,000,000 acres in the North Island; whilst the whole of the Middle Island, with the exception of reserves for the original Native owners, was acquired prior to the passing of "The Native Lands Act, 1862." Stewart Island was purchased from the Native owners by deed dated 29th June, 1864.

The Native rebellion of 1860–69 brought Native land purchases, for the time being, practically to a standstill.

The Immigration and Public Works Acts of 1870 and 1873 appropriated £200,000 and £500,000, respectively, for the purchase of lands in the North Island; and these amounts have, up to the 31st of March, 1895, been augmented by further annual appropriations from the public funds and other loan moneys, covering altogether a total expenditure since 1870 of £1,497,422, with the following results: Area finally acquired in the North Island from Natives, from 1870 to 31st March, 1895, 5,958,415 acres. Area under negotiation in the North Island on 31st March, 1895, 2,030,199 acres; interests therein finally acquired, 561,423 acres.

DIGEST OF THE LAND-LAWS.

Administration.

The Crown lands are administered, under the authority of "The Land Act, 1892," by the Hon. the Minister of Lands at Wellington. For convenience the colony is divided into ten land districts, each being under the local direction of a Commissioner and a Land Board. The Commissioner's office is known as the principal land office, and in some of the larger districts there are one or more sub-offices. It is with these land offices the selector has to transact all business, from the first consultation of the maps to the final receipt of the Crown title.

Land Districts and Principal Land Offices.

The names of the land districts and of the towns where each principal office is situated are, beginning with the most northerly and taking them geographically, as under:—

Land District.	Town where Principal Land Office is situated.	Land District.	Town where Principal Land Office is situated.
Auckland ..	Auckland.	Marlborough ..	Blenheim.
Taranaki ..	New Plymouth.	Westland ..	Hokitika.
Hawke's Bay..	Napier.	Canterbury ..	Christchurch.
Wellington ..	Wellington.	Otago ..	Dunedin.
Nelson ..	Nelson.	Southland ..	Invercargill.

Classification of Lands, &c.

Crown lands are divided into three classes:—

(1.) Town and village lands, the upset prices of which are, respectively, not less than £20 and £3 per acre; such lands are sold by auction:

(2.) Suburban lands, the upset price of which may not be less than £2 an acre; these lands are also sold at auction:

(3.) Rural lands, which may be disposed of at not less than £1 per acre for first-class, and 5s. an acre for second-class lands; such lands may be sold or leased by auction, or sold or leased on application.

No rural section may be larger than 640 acres in extent if first-class land, or 2,000 acres if second-class land, whether offered by auction or application. No person can select more than 640 acres of first-class or 2,000 acres of second-class land, including therein any land which he then holds. Pastoral runs are limited to areas which will carry 20,000 sheep or 4,000 cattle. No person can select more than one run.

Mode of acquiring Crown Lands.

Crown lands may be acquired as follows:—

(1.) By auction, after survey, in which case one-fifth of the price is paid down at the time of sale, the balance within thirty days:

(2.) By application, after the lands have been notified as open for selection, in which case the applicant fills up a form (to be obtained at any of the Land Offices) and makes the declaration and deposit required by the particular system he wishes to select under.

All applications, whether for surveyed or unsurveyed lands, are deemed to be simultaneous if made on the same day, and, if there be more than one applicant for the same land, the right of selection is determined by ballot.

Lands thrown open for application may be either surveyed or unsurveyed, and those not selected the first day remain open.

The Optional System of Selection.

Lands for selection are notified as open for application on and after a stated day, and, *at the option of the applicant,* may be obtained on any of the three following tenures: (*a*) Cash; (*b*) Occupation with the right of purchase; (*c*) Lease in perpetuity.

(a.) *Cash.*

If the land is surveyed, one-fifth of the price is to be paid down at the time of application, and the balance within thirty days; or, if the land is not completely surveyed, the survey-fee is paid on application, and goes towards the purchase of the land; the balance must be paid within thirty days of notice that the survey is completed.

A certificate of occupation will issue to the purchaser on final payment, which will be exchanged for a Crown title so soon as the Board is satisfied that the improvements mentioned below have been completed.

(b.) *Occupation with Right of Purchase.*

Lands selected on this tenure are held under a license for twenty-five years. At any time subsequent to the first ten years, and after having resided and made the improvements hereinafter described, the licensee can, on payment of the upset price of the land, acquire the freehold. If the land be not purchased the license may be exchanged for a lease in perpetuity.

The rent is 5 per cent. on the cash price of the land; a half-year's rent has to be paid in with the application, if surveyed land, which represents the half-year's rent due in advance on the 1st day of January or July following the selection. If the land is unsurveyed, the cost of survey is to be deposited, and is credited to the selector as so much rent paid in advance, counted from the 1st day of January or July following thirty days' notice of the completion of survey.

Residence and improvement of the land are compulsory, as hereinafter described.

(c.) *Leases in Perpetuity.*

Lands selected on this tenure are leased for 999 years, subject to the conditions of residence and improvements described below. The rental is 4 per cent. on the cash price of the land, and applications are dealt with in the same way as under the previous tenure (*b*), but there is at no time a right of purchase.

Two or more persons may make a joint application to hold as tenants in common under either of the two last-named tenures.

Residence and Improvements.

Under the two last-mentioned tenures, the conditions as to residence and improvements are:

RESIDENCE—

(1.) Must commence on bush or swamp lands within four years, and in open or partly open land within one year, from the date of selection;

(2.) Must be continuous for six years on bush or swamp land, and for seven years on open or partly open land, on lands occupied with a right of purchase;

(3.) Must be continuous for a term of ten years on lease-in-perpetuity lands.

The Board has power to dispense with residence in certain cases, such as where the selector is residing on adjacent lands, or is a youth or unmarried woman living with parents, and in a few other cases.

Residence implies the erection of a habitable house to be approved of by the Board.

Improvements which must be made are as follows:—

(1.) Cash-tenure lands must be improved within seven years to an amount of £1 an acre for first-class land, and 10s. an acre for second-class land.

(2.) Lands held on lease with right of purchase, or on lease in perpetuity, must be improved to an amount equal to 10 per cent. of the value of the land within one year from the date of the license or lease; within two years must be improved to the amount of another 10 per cent.; within six years must be improved to the value of another 10 per cent., making 30 per cent. in all within the six years. In addition to the above, the land must be further improved to an amount of £1 an acre for first-class land, and on second-class land to an amount equal to the net price of the land, but not more than 10s. an acre.

Improvements may consist of reclamation from swamps, clearing of bush, planting with trees or hedges, cultivation of gardens, fencing, draining, making roads, wells, water-tanks, water-races, sheep-dips, embankments or protective-works, or in any way improving the character or fertility of the soil; or the erection of any building, &c.; and *cultivation* includes the clearing of land for cropping, or clearing and ploughing for laying down with artificial grasses, &c.

Special-settlement Associations.

Under the existing regulations any number of persons, not less than twelve, may apply for a block of land of not less than 1,000 acres or more than 11,000 acres in extent, but the number of members must be such that there shall be one for every two hundred acres in the block, and no one can hold more than 320 acres, except in swamp lands, where the area may be 500 acres.

The capital value of lands within a special settlement is fixed after survey by special valuation, but may not be less than 10s. an acre; the rental is not less than 4 per cent. on the capital value, and the tenure is a lease in perpetuity.

Residence, occupation, and improvements are generally the same as already described, and applications have to be made in manner prescribed by regulations.

Applicants should apply to a Commissioner for a copy of the regulations, as they are liable to change at any time.

Village Settlements.

Village settlements are disposed of under regulations made from time to time by the Governor, but the main features are as follows:—

Such settlements may be divided into,—

(1.) Village allotments not exceeding one acre each, which are disposed of either by auction among the applicants, or by application as already described, with option of tenure, the cash price being not less than £3 per allotment:

(2.) Homestead allotments not exceeding 100 acres each, which are leased in perpetuity at a 4-per-cent. rental on a capital value of not less than 10s. per acre.

Residence, improvements, and applications are the same as already described. The leases are exempt from liability to be seized or sold for debt or bankruptcy.

The Colonial Treasurer is empowered in certain cases to advance small sums for the purpose of enabling selectors to profitably occupy their allotments.

Small Grazing-runs.

Small grazing-runs are divided into two classes: first-class, not exceeding 5,000 acres; second-class, not exceeding 20,000 acres in area. The rental in both cases is not less than 2½ per cent. on the capital value per acre, but such capital value cannot be less than 5s. per acre. Small grazing-runs are leased for terms of twenty-one years, with right of renewal for other twenty-one years, at a rent of 2½ per cent. on the then value of the land. The runs are declared open for selection, and applications and declarations on the forms provided have to be filled in and left at the Land Office, together with the deposit of one half-year's rent, which represents that due on the 1st day of March or September following the selection.

No holder of a pastoral run, and no holder of freehold or leasehold land of any kind whatever, over 1,000 acres in area exclusive of the small grazing run applied for, may be a selector under this system, and only one small grazing run can be held by any one person.

The lease entitles the holder to the grazing rights, and to the cultivation of any part of the run, and to the reservation of 150 acres round his homestead through which no road may be taken; but the runs are subject to the mining laws.

Residence is compulsory, if bush or swamp land, within three years; if open, within one year; and must be continuous to the end of the term, but may in a few cases be relaxed. Improvements necessary are as follows: Within the first year, to the amount of one year's rent; within the second year, to another year's rent; and, within six years, to the value of two other years' rent: making in all a sum equal to four years' rental, which must be expended within six years. In addition to these improvements, bush-covered first-class runs must be improved to an amount of 10s. an acre, and second-class bush-clad runs to an amount of 5s. an acre.

These runs may be divided, after three years' compliance with the conditions, amongst the members of the selector's family.

Pastoral Runs.

Pastoral country is let by auction for varying terms not exceeding twenty-one years; and, excepting in extraordinary circumstances, runs must not be of a greater extent than will carry 20,000 sheep or 4,000 head of cattle. Runs are classified from time to time by special Commissioners into: (1) Pastoral lands, which are suitable only for depasturing more than 5,000 sheep; (2) Pastoral-agricultural lands, suitable for subdivision into areas of under 5,000 acres, which may be either let as pastoral runs, generally for short terms, or cut up for settlement in some other form. Leases of pastoral lands may not be resumed; leases of pastoral-agricultural lands may be resumed at any time after twelve months' notice, without compensation.

No one can hold more than one run; but in case of any one holding a run of a carrying-capacity less than 10,000 sheep, he may take up additional country up to that limit.

Runs are offered at auction from time to time, and half a year's rent has to be paid down at the time of sale, being the amount due in advance on the first day of March or September following the sale, and the purchaser has to make the declaration required by the Act. All leases begin on the first day of March, and they entitle the holder to the grazing rights, but not to the soil, timber, or minerals; and the lease terminates over any part of the run which may be leased for some other purpose, purchased, or reserved. The tenant has to prevent the burning of timber or bush; in open country to prevent the growth of gorse, broom, or sweet-briar; and to destroy the rabbits on his run. With the consent of the Land Board, the interest in a run may be transferred or mortgaged, but power of sale under a mortgage must be exercised within two years.

In case it is determined again to lease any run on expiry of the lease, the new lease must be offered by auction twelve months before the end of the term, and if, on leasing, it shall be purchased by some one other than the previous lessee, valuation for improvements, to be made by an appraiser, shall be paid by the incoming tenant, but to a value not greater than three times the annual rent—excepting in the case of a rabbit-proof fence, which is to be valued separately. If the run is not again leased, the value of rabbit-proof fencing is paid by the Crown, but the tenant has no claim against the Crown beyond the value of the rabbit-proof fence; he may, however, within three months of sale, remove fences, buildings, &c. Runs may also be divided with the approval of the Board.

Survey Charges on Unsurveyed Lands.

The following is the scale of charges for surveys of unsurveyed lands :—

Not exceeding 30 acres, £6.
Exceeding 30 and up to 50 acres, 3s. 6d. per acre, but not less than £6.
Exceeding 50 and up to 100 acres, 3s. per acre, but not less than £8 15s.
Exceeding 100 and up to 200 acres, 2s. 6d. per acre, but not less than £15.
Exceeding 200 and up to 300 acres, 2s. per acre, but not less than £25.
Exceeding 300 and up to 500 acres, 1s. 8d. per acre, but not less than £30.
Exceeding 500 and up to 1,000 acres, 1s. 4d. per acre, but not less than £41 10s.
Exceeding 1,000 and up to 2,000 acres, 1s. per acre, but not less than £66 10s.

For the survey of any area of rural land, being open land, the scale of charges shall be two-thirds the foregoing rates.

THE NATIVE LAND (VALIDATION OF TITLES) ACT.

The Validation Court was constituted by an Act of Parliament in the year 1893, for the purpose of dealing with and finally settling the titles to lands acquired by Europeans from Natives, but which, owing to various complications, could not be completed by the ordinary methods of procedure. The policy of successive Ministries with regard to the acquisition of Native lands by private persons has varied from year to year, and gradually a mass of legislation had grown up, often conflicting, always complicated, and the cause of the gravest dissatisfaction among both races. Negotiations commenced under one law could not be completed under its successor, with the result that titles could not be obtained, and the progress of settlement was seriously retarded, and, in one district, almost entirely arrested.

The Native Land Court Act of 1889 attempted to provide a remedy by the creation of a Court of Commission to inquire into all the circumstances attending any alleged alienation or acquisition of land, or of any interest therein, prior to a certain date, "which may be barred or invalidated by any law now or at any time heretofore in force," and to report thereon. The Court was set up, but, from causes which need not be detailed here, it was unable to effect any progress. A change of Government took place in 1891, and the Commission was terminated. In 1892, the Native Land (Validation of Titles) Act was passed, which proposed to utilise the existing machinery of the Native Land Court to inquire into incomplete alienations, and to grant certificates which were to be subject to confirmation by Parliament.

In 1893 the present Act was passed, setting up a special Court, "the Validation Court," with Judges holding office for a fixed period, at a fixed salary, and removable only for such [illegible] and in such manner as a Judge of the Supreme Court is removable. Only one such Judge has so far been appointed. The Court is empowered to deal with all land transactions between Europeans and Maoris, subject, however, to the important conditions that the claimant for validation is able to show,—

(1.) That any agreement or contract, irrespective of form, was one which, had it been made between Europeans touching and concerning lands held under Crown grant, would have been a valid and binding contract, capable of being enforced in the Supreme Court;

(2.) That any such agreement or contract was not in any respect contrary to equity and good conscience;

(3.) That any such agreement or contract was fully and perfectly understood at the time it was entered into by the agreeing or contracting parties, and was a fair agreement or contract for a reasonably sufficient and lawful consideration at the time and under the circumstances in which it was made; and the Court may refuse to validate any contract or agreement which fails to comply with any one of such requirements, or which, in the opinion of the Court, was not fair and reasonable, or was contrary to equity and good conscience, or tainted with actual fraud and improper dealing.

Appeals lie to the Court of Appeal only.

All orders and decrees made by the Court are to be laid before Parliament, and are to be deemed to be confirmed unless a resolution to the contrary be passed by either House. On confirmation, the titles issue to the persons entitled.

Such, shortly, are the salient features of the Act constituting the Validation Court. The Court itself is unique; it is armed with enormous powers, and it is subject to no other Court than the Court of Appeal. The object aimed at by the establishment of the Court was finality. The Court was therefore empowered to make final decrees which should not require formal confirmation by resolution or Act of Parliament, but should be confirmed unless expressly negatived by Parliament.

During the twelve months ended the 31st March, 1895, the Court has had before it applications for validation in respect of forty-two blocks of land, containing a total of 110,388 acres, of the value of £117,867.

By an Act of 1894, Judges of the District Court, and Judges of the Native Land Court who are barristers, are made eligible for appointment as Judges of the Validation Court. They, however, hold their offices at the pleasure of the Governor. Two such Judges have been appointed; but as yet (April, 1895) no cases have been decided by them.

THE CHEVIOT ESTATE.

The Government acquired this estate, which consists of 84,755 acres, under the Land and Income Assessment Act. The property was assessed at £304,826, the improvements being valued at £54,300, with an unimproved value of £250,526. It was returned by the trustees of the estate as of the value of £260,220. The improvements were valued at £60,150, and the unimproved value at £200,070. The trustees objected to the assessed value; but the Commissioner of Taxes disallowed the objection, and referred the question to the Board of Reviewers, who upheld the assessed value.

The trustees then addressed a letter to the Commissioner of Taxes, calling upon him to reduce the valuation to their value—namely, £260,220; or else to take the property at that price, in terms of the Land and Income Assessment Act.

The Commissioner declined to make any reduction, and recommended that the estate should be acquired by the Government.

Four special valuations were made, with the following results: £304,826; £300,767; £285,000; and £295,998.

After these valuations had been made, and considered by the Government, it was determined to acquire the property at the trustees' valuation of £260,220; and on the 9th December, 1892, an Order in Council was passed giving effect to the same. The transaction was completed on the 19th April, 1893, when the conveyance was signed, and payment made. The estate then became vested in the Crown, and was placed under the administration of the Minister of Lands.

The pastoral lands, houses, and grounds were then temporarily let at the rate of £8,862 per annum; while surveyors laid out country for settlement, and roads. The result of the first sale, held in November, 1893, was that 13,500 acres were leased in perpetuity at an annual rent of £3,616; 2,518 acres were leased for twenty-one years, at a rent of £426 per annum; 1,270 acres were sold for cash, and on terms, realising a present payment of £3,855, and leaving £3,855 payable within five years, bearing 5 per cent. interest. Thirty-three sections of town land were disposed of, realising £825. The Mansion House Block was not then sold.

A second sale was held in January, 1894, when 10,460 acres were leased in perpetuity for £2,867 per annum, and 5,000 acres, with the mansion and other buildings, were sold for £25,000 cash.

At the third sale, in March, 1894, 23,373 acres were leased at an annual rent of £3,237; but there were no offers for the cash land.

In May of the same year the whole 20,548 acres of the grazing-farms, pastoral leases, and licenses were disposed of at an annual rent of £2,916; 1,419 acres were leased in perpetuity as rural and village homesteads, at a rent of £317; forty-one sections of town and suburban lands were sold for cash, realising £957. Thus there now remains in the hands of the Government only 3,066 acres of reserves and small areas.

The operations on the estate, and balance-sheet to the 31st March, are set forth in the returns below, which show that there was a population already of 800 persons, owning 74,230 sheep, 1,447 cattle, and 464 horses:—

RETURN SHOWING THE OPERATIONS ON THE CHEVIOT ESTATE TO 31ST MARCH, 1895.

Number of Sections						Rent.			Roads.		Bridges.		Fencing.	Persons resident.	Stock.		
Offered for Occupation.		Disposed of.		Occupied.		Payable.	Paid.	Arrears on Mar. 31, 1895.	Miles.	Cost.	Feet.	Cost.	Miles.		Horses	Cattle.	Sheep.
No.	Area.	No.	Area.	No.	Area.												
	Acres.		Acres.		Acres.	£	£		M. ch.	£		£					
447	80,529	447	80,529	278	..	24,096	22,751	1,345*	64 23	34,818	379½	2,377	298	800	464	1,447	74,330

* Arrears 26th June, £226.

Statutory improvements of holdings: Made by settlers, 208; not made by settlers, 9.

RETURN OF LANDS DISPOSED OF AND MONEYS RECEIVED TO 31ST MARCH, 1895.

Cash.			Lease in Perpetuity.				Grazing Farms.			
Number of Persons.	Area.	Amount received.	Number of Selectors.	Area.	Annual Rental payable.	Amount received.	Number of Selectors.	Area.	Annual Rental payable.	Amount received.
	A. R. P.	£ s. d.		A. R. P.	£ s. d.	£ s. d.		A. R. P.	£ s. d.	£ s. d.
89	6,546 1 8	32,788 0 0	106	23,945 2 38	6,221 2 6	7,427 11 1	30	43,628 2 0	6,265 3 7	5,478 11 2

*Village-homestead Special Settlements.				Miscellaneous.
Number of Selectors.	Area.	Annual Rental payable.	Amount received.	Miscellaneous, Pastoral Rents, and Fees.
	A. R. P.	£ s. d.	£ s. d.	£ s. d.
95	2,579 1 21	848 19 10	1,065 6 11	8,780 3 9

£3,691 due besides

RETURN OF OUTLAY AND INCOME.

Outlay—Dr.	£
Cost of freehold	260,220
Road-construction	37,195
Surveys	6,367
Landing-service, advertising, administration, and contingencies	8,262
Interest paid and accrued	20,770
	£332,814

Income—Cr.	
From freehold, &c., disposed of	32,788
Rents paid and accrued	24,096
Interest	470
Shipping and port charges	1,353
Balance	274,107
	£332,814

ADVANCES TO SETTLERS.

By J. K. WARBURTON, Superintendent.

'The Government Advances to Settlers Act, 1894," aims at
rding, consistently with the public safety, relief to the country set-
, to whom the high rates of interest and the heavy incidental
nses on the mortgage of land had become so burdensome, and
oving an obstacle to the progress of the colony. It authorises
creation of a capital fund, from which the settlers on the rural
s of the colony who possess land on which money can be lent
out risk of loss, may obtain small advances of capital to pro-
y carry on their work of settlement or to overcome temporary
arrassment.

he terms and conditions of the advances are arranged with the
ost consideration for the settlers that an administration of the
e without loss to the colony will allow. The charges to the
er, as well for the special valuation of the property offered as
rity as for the legal costs incident to the mortgage, are as
as these charges can be made for reliable services. There are
larger considerations to the borrower, not only in a low rate of
rest on the advance, but in the option of repaying the principal
ny time, either wholly or by small instalments. And settlers,
ther they borrow money under this Act or not, must regard
satisfaction the supply of capital at reasonable rates of interest
on terms so convenient. In the provision for repayment of the
unt of an advance wholly at any time, or in small sums from
to time as they can be saved, the borrower has a powerful
cement to economy. This is a provision, indeed, to enable the
er who borrows money to invest, so to speak, on his own pro-
y his savings or the profits of his business—that is, to invest, by
ng off the debt for which that property is the security, every
that he may have to spare of £5 or more.

he advances are made at a rate, payable half-yearly, of 6 per
per annum, of which 5 per cent. is for interest, and 1 per cent.

in repayment of the capital; but, though the capital is to be thus repaid at a yearly rate of not less than 1 per cent., the borrower can, as has already been stated, repay the amount more rapidly, or at any time repay it wholly, and obtain a discharge of the mortgage in the manner afterwards explained.

The capital fund is authorised to be raised by New Zealand Government loans, not to exceed £1,500,000 for each of the two years from the date of the passing of the Act, and at an annual rate of interest not higher than 4 per cent. The fund is thus restricted to £3,000,000, of which £1,500,000, realising £94 8s. 9d. per cent., has been raised at a rate of 3 per cent.

For the purpose of carrying out the object of the Act, an office—called the "Government Advances to Settlers Office"—has been established; and this office is administered by an officer called the "Superintendent," who is appointed by the Governor to hold office during pleasure, and is constituted a corporation sole, under the style of the "Government Advances to Settlers Office Superintendent"; while, for the more satisfactory attainment of the same object, a Board—called the "General Board"—co-operates with and assists the Superintendent, and advises with him generally. No advance can be granted otherwise than by the resolution of the General Board upon the written application of the proposed borrower, and upon a valuation made by or on behalf of the Superintendent and to the satisfaction of the General Board; and this valuation is made by qualified experts, whose reports comprise every circumstance that can be ascertained respecting the property.

The business of the Advances to Settlers Office is, accordingly, the advancing of money on the security of first mortgages on the following classes of lands in New Zealand, not being urban or suburban lands, free from all encumbrances, liens, and interests other than leasehold interests—that is to say, as provided by section 25 of the Act:—

(1.) Freehold land held in fee-simple under "The Land Transfer Act, 1885," or freehold land held in fee-simple the title to which is registered under "The Deeds Registration Act, 1868."

(2.) Crown land held on perpetual lease under "The Land Act, 1885."

(3.) Crown land held under Parts III. and IV. of "The Land Act, 1892."

(4.) Crown land held on lease as a small grazing-run under "The Land Act, 1885," or under "The Land Act, 1892."

(5.) Crown land held on agricultural lease under "The Mining Act, 1891."

(6.) Crown land held on lease (not being for mining purposes) under "The Nelson and Westland Coalfields Administration Act, 1877."

(7.) Native land held on lease under "The West Coast Settlement Reserves Act, 1892"; or

(8.) Land held on lease under "The Westland and Nelson Native Reserves Act, 1887."

(9.) Land held under "The Thermal-Springs Districts Act, 1881."

The class of land in each instance shall be determined by the Board.

As deferred-payment sections are not securities on which advances under the Act can be made, the holder of such a section, with no other security to offer, would apply for an advance only when the object is to acquire the freehold, and would in that case offer the freehold as the security.

It is necessary to the granting of an advance under the Act that,—

(*a*.) The property which the applicant offers to mortgage for the loan must consist of some one or more of the several foregoing classes of land, which has been ascertained by the special valuation by or on behalf of the Superintendent to be of the necessary value; and if the security is a leasehold interest, all covenants and conditions on the lessee's part must have been complied with up to the date of the application for the advance.

(*b*.) The person desiring the advance must make a written application to the Superintendent on the form prescribed by regulations under the Act, and it has been arranged that copies may be obtained from any Postmaster in the colony, and the Postmaster will afford to applicants any explanation which may be required respecting the use of the form.

(*c*.) The application should be for a loan of not less than £25 and of not more than £2,500, and should be accompanied by the valuation fee prescribed; and if the applicant has already obtained any advances under the Act, the amount of the application, added to the amount of the advances already obtained, should not exceed the sum of £2,500.

(*d*.) Where the security offered for the advance consists of leasehold land, the application in respect of such leasehold security should not be for more than half the value of the lessee's interest in the lease—that is to say, not for more than half the amount which the sale of the lessee's interest would realise.

(*e*.) Where the security offered consists of freehold lands, the application in respect of such freehold security should not be for more than three-fifths of the value of that security. For example, a leasehold interest on which an advance could be made, and for which it is estimated that a purchaser would give £100, would be a security on which an advance up to £50 could be granted. A freehold property of the same value and acceptable for an advance would be a security on which an advance up to £60 might be made. The freehold property worth £100 and the leasehold interest worth £100 would together be a security on which an advance up to £110 might be granted. This condition is a restriction on the General Board, without whose resolution no advance can be granted, but does not entitle an applicant to an advance up to the limit, or, indeed, to any advance whatever. The resolution of the Board is regulated, of course, by the amount which a sale of the property by auction should be estimated by the valuer to realise, but is also regulated by the risk of any loss from an advance on the property. No advance will be authorised which may not, in the judgment of the Board, consist with that public safety which in the preamble to the Act is indicated as a principle of the measure.

Every mortgage executed under the Act is subject to the following provisions: The loan shall be for a term of 36½ years. The loan, with yearly interest at the rate of 5 per cent., must, at the furthest, be repaid by seventy-three half-yearly instalments, consisting partly of principal and partly of interest. Every such half-yearly instalment except the last shall for every £100 of the loan be £3, according to the following table, which shows how much of each instalment is on account of principal, how much for interest, and what balance of the principal the borrower will owe at the due date of each half-yearly instalment:—

TABLE OF PRESCRIBED HALF-YEARLY INSTALMENTS FOR EVERY ONE HUNDRED POUNDS OF THE LOAN.

Half-year.	Prescribed Half-yearly Instalment.			Apportioned thus:						Balance of Principal owing.		
				On Account of Interest at 5 per Cent.			On Account of Principal.					
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1st	3	0	0	2	10	0	0	10	0	99	10	0
2nd	3	0	0	2	9	9	0	10	3	98	19	9
3rd	3	0	0	2	9	6	0	10	6	98	9	3
4th	3	9	0	2	9	3	0	10	9	97	18	6
5th	3	0	0	2	9	0	0	11	0	97	7	6
6th	3	0	0	2	8	8	0	11	4	96	16	2
7th	3	0	0	2	8	5	0	11	7	96	4	7
8th	3	0	0	2	8	1	0	11	11	95	12	8
9th	3	0	0	2	7	10	0	12	2	95	0	6
10th	3	0	0	2	7	6	0	12	6	94	8	0
11th	3	0	0	2	7	2	0	12	10	93	15	2
12th	3	0	0	2	6	11	0	13	1	93	2	1
13th	3	0	0	2	6	7	0	13	5	92	8	8
14th	3	0	0	2	6	3	0	13	9	91	14	11
15th	3	0	0	2	5	10	0	14	2	91	0	9
16th	3	0	0	2	5	6	0	14	6	90	6	3
17th	3	0	0	2	5	2	0	14	10	89	11	5
18th	3	0	0	2	4	9	0	15	3	88	16	2
19th	3	0	0	2	4	5	0	15	7	88	0	7
20th	3	0	0	2	4	0	0	16	0	87	4	7
21st	3	0	0	2	3	7	0	16	5	86	8	2
22nd	3	0	0	2	3	2	0	16	10	85	11	4
23rd	3	0	0	2	2	9	0	17	3	84	14	1

TABLE OF PRESCRIBED HALF-YEARLY INSTALMENTS FOR EVERY ONE HUNDRED POUNDS OF THE LOAN—*continued.*

Half-year.	Prescribed Half-yearly Instalment.	Apportioned thus:		Balance of Principal owing.
		On Account of Interest at 5 per Cent.	On Account of Principal.	
	£ s. d.	£ s. d.	£ s. d.	£ s. d
24th	3 0 0	2 2 4	0 17 8	83 16 5
25th	3 0 0	2 1 11	0 18 1	82 18 4
26th	3 0 0	2 1 6	0 18 6	81 19 10
27th	3 0 0	2 1 0	0 19 0	81 0 10
28th	3 0 0	2 0 6	0 19 6	80 1 4
29th	3 0 0	2 0 0	1 0 0	79 1 4
30th	3 0 0	1 19 6	1 0 6	78 0 10
31st	3 0 0	1 19 0	1 1 0	76 19 10
32nd	3 0 0	1 18 6	1 1 6	75 18 4
33rd	3 0 0	1 18 0	1 2 0	74 16 4
34th	3 0 0	1 17 5	1 2 7	73 13 9
35th	3 0 0	1 16 10	1 3 2	72 10 7
36th	3 0 0	1 16 3	1 3 9	71 6 10
37th	3 0 0	1 15 8	1 4 4	70 2 6
38th	3 0 0	1 15 1	1 4 11	68 17 7
39th	3 0 0	1 14 5	1 5 7	67 12 0
40th	3 0 0	1 13 10	1 6 2	66 5 10
41st	3 0 0	1 13 2	1 6 10	64 19 0
42nd	3 0 0	1 12 6	1 7 6	63 11 6
43rd	3 0 0	1 11 9	1 8 3	62 3 3
44th	3 0 0	1 11 1	1 8 11	60 14 4
45th	3 0 0	1 10 4	1 9 8	59 4 10
46th	3 0 0	1 9 7	1 10 5	57 14 5
47th	3 0 0	1 8 10	1 11 2	56 3 3
48th	3 0 0	1 8 1	1 11 11	54 11 4
49th	3 0 0	1 7 3	1 12 9	52 18 7
50th	3 0 0	1 6 6	1 13 6	51 5 1
51st	3 0 0	1 5 8	1 14 4	49 10 9
52nd	3 0 0	1 4 9	1 15 3	47 15 6
53rd	3 0 0	1 3 11	1 16 1	45 19 5
54th	3 0 0	1 3 0	1 17 0	44 2 5
55th	3 0 0	1 2 1	1 17 11	42 4 6
56th	3 0 0	1 1 1	1 18 11	40 5 7
57th	3 0 0	1 0 2	1 19 10	38 5 9
58th	3 0 0	0 19 2	2 0 10	36 4 11
59th	3 0 0	0 18 1	2 1 11	34 3 0
60th	3 0 0	0 17 1	2 2 11	32 0 1
61st	3 0 0	0 16 0	2 4 0	29 16 1
62nd	3 0 0	0 14 11	2 5 1	27 11 0
63rd	3 0 0	0 13 9	2 6 3	25 4 9
64th	3 0 0	0 12 7	2 7 5	22 17 4
65th	3 0 0	0 11 5	2 8 7	20 8 9
66th	3 0 0	0 10 3	2 9 9	17 19 0
67th	3 0 0	0 9 0	2 11 0	15 8 0
68th	3 0 0	0 7 8	2 12 4	12 15 8
69th	3 0 0	0 6 5	2 13 7	10 2 1
70th	3 0 0	0 5 1	2 14 11	7 7 2
71st	3 0 0	0 3 8	2 16 4	4 10 10
72nd	3 0 0	0 2 4	2 17 8	1 13 2
73rd	1 14 0	0 0 10	1 13 2	..

Notwithstanding the foregoing provisions, and as may be repeated, the mortgagor may pay to the Superintendent, with any of the prescribed half-yearly instalments, the whole balance of principal owing, and obtain a discharge of the mortgage debt on payment of the fees prescribed for such discharge. For example: If the borrower of £100 should, at the close of the first year, pay to the Superintendent, in addition to the second instalment, a sum of £98 19s. 9d., the whole balance of principal owing would be refunded, and the borrower could then obtain a discharge of the mortgage, on payment of the prescribed fees.

Or the mortgagor may from time to time pay to the Superintendent, in addition to the half-yearly instalments, sums of £5, or of a multiple of £5, in reduction of the mortgage-debt; and when the sums so paid amount, with the accumulated interest at an annual rate of 4 per cent. compounded yearly, to the balance of principal owing at the time according to the foregoing table, the mortgagor can obtain a discharge of the mortgage on payment of the prescribed fees. If for example, the borrower of £100 should, at the end of the second year of the mortgage, pay, in addition to the fourth half-yearly instalment of £3, a sum of £50 in reduction of the mortgage-debt, the half-yearly instalments would continue to be payable until the balance of the principal owing should not exceed the amount of £50 with interest compounded annually at 4 per cent.; that is to say, the instalments would be payable for fourteen years, or until the twenty-eighth instalment had been paid, when the balance of principal owing would be £80 1s. 4d., and the sum of £50 would, with the accumulation of interest at 4 per cent. per annum, amount to £80 1s. A payment of 4d. would, consequently, then repay the whole balance of principal owing, and entitle the borrower to discharge of the mortgage on payment of the costs and fees for the discharge.

The valuation fees to be paid by applicant, in any event, and which must accompany the application, are as follows:—

	£	s.	d.
On an application for a loan not exceeding £100 ..	0	10	6
Exceeding £100, but not exceeding £250	1	1	0
„ £250 „ £500	1	11	6
„ £500 „ £2,500	2	2	0

The fees and costs payable for mortgages under the Act are:—

Scale of Costs and Fees for Mortgages.

Mortgages under "The Land Transfer Act, 1885."

Law-costs of preparing, or perusing, and of registering mortgage (to be deducted from the advance),—

	£	s.	d.
If advance be not exceeding £500	0	10	6
Exceeding £500, but not exceeding £1,000	1	1	0
Exceeding £1,000 but not exceeding £2,500 ..	1	11	6

With cash disbursements, which are the same in every case, namely,—

Mortgage form	2s.	
Search fee	2s.	With an additional 2s. for every certificate of title after the first.
Registration	10s.	

Costs and fees for discharge of mortgage,—

Law-costs	5s.	With an additional 2s. for every certificate of title after the first.
Registration fee (if mortgage is discharged by the Advances to Settlers Office ..	5s.	

Mortgages under "The Deeds Registration Act, 1868."

Costs of preparing, or perusing, and of registering mortgage, including disbursements (to be deducted from the advance),—

	£	s.	d.
If advance be not exceeding £500..	2	10	0
For every additional £500	0	15	0
Costs of discharge, including registration fees ..	1	1	0

No commission or charge or procuration fee for the promotion of an advance—that is, for the successful result of the application for the loan—should be paid or levied.

The officials of the Government Advances to Settlers Office are required to observe the strictest secrecy respecting the applications for advances, and are forbidden to give any information respecting the name of any applicant or the amount of the advance which the applicant may apply for or obtain, except to such of the officers as may be appointed to assist in carrying out the provisions of the Act.

No information as to the transactions of any individual with the Advances to Settlers Office, in respect of an advance under the Act, will be disclosed by the office or by the Government in any returns or statistics, or otherwise. No person, therefore, who may apply for or obtain a loan need be in any fear of disclosure by the office of the names of persons who may have transactions with the office, or of their individual business.

The interest received under the mortgages is to be applied to the payment of the interest on the loans raised for the purpose of the fund from which the advances are made; then to the transfer, to the extent of one-tenth of the whole amount, to an assurance fund; and any residue is to be available for the general expenses of management. The amounts received from the borrowers in repayment of the capital or principal amounts of the advances are to be paid to the Public Trustee for investment as a sinking fund, to be held by the Public Trustee at the disposal of the Colonial Treasurer towards redemption of the debentures for the loans.

The first meeting of the General Board for the purpose of considering the applications for loans under the Act was held on the 23rd February, 1895, and up to the 31st May following there had been held twenty-four meetings of the Board for the same purpose.

The advances authorised by the office up to the 31st May, 1895, with other particulars, are shown on page 181.

NEW ZEALAND CONSOLS.

The purpose of "The New Zealand Consols Act, 1894," is, by providing for an inscription of such Consols, to give further facilities for the safe investment of savings. Practically, it establishes another branch of the Government Savings-Bank, with extended power of investment. Under section 3 the Colonial Treasurer is authorised to receive by way of deposits from persons in the colony sums of money up to £500,000; but the amount deposited in any one year must not be more than £250,000. The currency of such deposits is not to exceed forty years. The rate of interest must not exceed 4 per cent.

Post-office money-order offices throughout the colony are made use of to receive applications for inscription, and also for payment of the half-yearly interest on the amounts deposited. The Receivers are the Postmasters, and the Registrar under the Act is the Secretary to the Treasury, Wellington.

Regulations have been issued, under which every deposit of money for inscription is to be accompanied by an application according to the form given below, which is to be signed by the applicant and countersigned by the Receiver (Postmaster) taking the deposit. The person paying the money receives an interim receipt pending official acknowledgment from the Registrar at Wellington. The receipt subsequently given by the Registrar to the Consols-holder is not a negotiable document, or of monetary value, beyond its being proof of the deposit for purposes of inscription. A holder of Consols can obtain from the Registrar on application and payment of 5s. a certified copy of any entry in the register relating to his deposit.

There is provision for the transfer of Consols from one holder to another on application being made to the Registrar according to the second form given, and payment of 1s. fee.

In case an inscriber desires to make use of his deposit, or any portion of it, to the extent of £5, or a multiple of £5, he can obtain a Consols certificate, which is payable to bearer and is transferable by delivery. This certificate entitles the holder to receive interest half-yearly at the same rate as the original inscription, and also to payment of the principal sum on the due date.

The application for the certificate must be according to the form below, and the fee payable is 1s. for every one hundred pounds or aliquot part thereof expressed in the certificate. There is also a fee at the above rate for inscribing the amount of a Consols certificate. The form of Consols certificate is also given.

Interest on Consols for which no certificate has been issued is payable by warrant, and such warrants are transferable by indorsement in the manner provided in the form.

Interest on Consols for which a certificate has been issued is payable to the bearer of the certificate on presentation at any post-office money-order office, or at the Treasury, Wellington (see the last form).

The Act provides for the deposit of money by minors, which may be acceptable to parents as encouraging habits of thrift in children.

The Consols have a currency to the 1st February, 1910, and carry interest at the rate of three pounds ten shillings for every one hundred pounds deposited, and an assured investment of moneys bearing a fair rate of interest for so long a term should secure, when well known, a large portion of the deposits of our thrifty countrymen.

Application for Inscription.

To the Registrar of Inscribed Consols,
Treasury, Wellington.

I [We], , of , having this day deposited at the sum of pounds shillings and pence, for investment in -per-cent. New Zealand Consols, hereby request that the same may be duly inscribed in the books of your office in the name of .

Signature of depositor:
Full address of depositor, together with name of nearest money-order office:

Dated at , this day of , 189 .

Deposit duly received as above.
Signature of Receiver: .

Application for Transfer.

In consideration of the sum of , the receipt whereof is hereby acknowledged, I [we], , of , do assign the sum of pounds shillings and pence, being my [our] interest or share in the New Zealand -per-cent. Inscribed Consols, under the "The New Zealand Consols Act, 1894," and all my [our] property, right, and interest in and to the same, and the dividends thereon, unto , of , his [their] executors, administrators, or assigns, and the Registrar is hereby requested to transfer the same accordingly. The prescribed fee of is enclosed herewith.

Witness my [our] hand , this day of , 189 .
Signature: .

Witnessed by—
Signature: .
Occupation: .
Address: .

I [We], of , do hereby accept the above Consols, and apply for the transfer thereof to me [us].
Signature: .

Witnessed by—
Signature: .

Application for Consols Certificate.

Place: .
Date: , 189 .

To the Registrar of Inscribed Consols,
Treasury, Wellington.

I [We], , of , being the holder of New Zealand Inscribed Consols to the amount of pounds shillings and pence, do hereby make application for a Consols certificate in favour of bearer for the sum of pounds, to be issued to me [us] in accordance with and subject to the provisions contained in "The New Zealand Consols Act, 1894." The prescribed fee of is enclosed herewith.

Signature: .

Witness—
Signature: .
Occupation: .
Address: .

Consols Certificate.

No. . £ .

THE bearer of this certificate will be entitled to payment of the sum of pounds sterling upon presentation hereof at the Treasury at Wellington, New Zealand, on the day of , 19 , together with such interest, computed at the rate of sterling per centum per annum, as may be found to be unpaid on the before-mentioned date in accordance with the indorsements of interest-payments made hereon.

The principal and interest are a charge upon and shall be paid out of the accruing income of the Consolidated Fund of the colony.

Interest hereon at the rate of sterling per centum per annum is payable half-yearly, on the and in each year, at any post-office money-order office within the colony.

The amount of interest paid is to be indorsed on the back hereof by the person making such payment.

Dated at the office of the Registrar of Inscribed Consols, Wellington, , 189 .

, Registrar.

Countersigned—

, Controller and Auditor-General.

Entered, folio .

[On the back, indorsements of the half-yearly dividends paid by the Postmaster are to be duly made.]

Dividend Warrant.

To the Treasury at Wellington, or to the Postmaster at any post-office money-order office throughout the colony.

PLEASE pay or order the sum of pounds shillings and pence, being interest for half-year due , 189 , on £ -per-cent. New Zealand Consols.

£ : : . , Registrar.

I hereby acknowledge to have received the above-mentioned sum in full payment of interest for half-year due as above.

Signature: .

DEPARTMENT OF INDUSTRIES AND COMMERCE.

The inauguration of this department took place early in the year 1894, when the Hon. J. G. Ward was appointed Minister in charge. The object is to obtain fresh markets for New Zealand products, as well as to increase the exports to markets already in existence. The Government also purposes giving practical assistance to any branch of commerce and industrial progress requiring to be fostered.

The Conference held at Ottawa, Canada, in June, 1894, was considered a fitting opportunity for sending a delegate, who, among his other duties, might inquire into the trade relations existing between that country and Australasia; and, accordingly, a gentleman well versed in commercial pursuits represented New Zealand in that conference. His report contains many useful suggestions and much practical information concerning the products of the colony likely to find markets in the Dominion.

An expert was also dispatched to London to make inquiries as to the chance of our timbers finding a market in England. He was attached to the office of the Agent-General, under whose instructions he acted. On his arrival, he found that a favourable opportunity was afforded by the scarcity of timber for street paving. His reports on this subject contain valuable information, and it is expected that (due care being taken that none but the best timbers are sent Home) a steady and increasing demand will continue for New Zealand woods. A shipment was procured, consisting of 100,000ft. of kauri, from the Kauri Timber Company at Auckland, and forwarded as a trial for use in street-paving; but it is hoped that some less valuable woods will be found suitable for this purpose.

These and other matters dealing with surplus products are now engaging the attention of the department, and it is hoped that before long the best results will be found to follow from its establishment.

LAND AND INCOME-TAX.

By the Commissioner of Taxes.

By an Act passed in the session of 1891 the tax levied on property of all kinds was removed, and two taxes substituted in its place—a land-tax on the unimproved value of land and on mortgages, and an income-tax upon the incomes derived from sources other than land or mortgages. The annual revenue from both these taxes has proved to be very nearly the same as that formerly derived from the property-tax, the land- and income-tax being the more productive.

The Land-tax.

The substitution of the land- and income-tax for the property-tax was more or less tentative at first, owing to the absence of data upon which to base a correct estimate of the value of improvements on land, or as to the probable yield of an income-tax. All improvements were consequently not at first exempted, the limit of exemption being fixed at £3,000; the total improvements were, however, exempted by law before the second collection of the tax.

The yield of the land-tax has been, in round numbers, £280,000 a year, of which about £200,000 represents the yield of the ordinary land-tax, while £80,000 is contributed by the graduated tax and the special tax on absentee land-owners.

For the purposes of the ordinary land-tax owners are allowed to deduct from the unimproved value of their land the amount of registered mortgages secured upon their land, and the mortgagees are called upon to pay the tax upon the sum total of their mortgages.

An owner is allowed an exemption of £500, if the unimproved value of his land and mortgages, after deducting mortgages due by him, does not exceed £1,500, but the amount of exemption diminishes by degrees, and disappears altogether where the assessed unimproved value, less deductions, reaches £2,500.

All these deductions very largely reduce the number of land-tax payers as compared with the number of land-owners, the former being about 13,000 only, while of the latter there are upwards of 90,000.

Mortgages are assessed at their full value, except in cases where, through depreciation of the security or from other cause, it appears that the value of the mortgage has been diminished.

The graduated tax is chargeable on all owners where the unimproved value of the land amounts to £5,000 and over. The scale is given on another page. Mortgages are not chargeable with the graduated-tax, nor can they be deducted from the amount chargeable with this tax.

Twenty per cent. additional graduated-tax is levied on owners who have been resident out of the colony for a period of three years or more prior to the date of the passing of the annual Tax Act. This tax brings in about £1,000 a year only. When land is held in partnership, and one owner is resident in the colony, the absentee-tax is not charged, nor is it charged in the case of companies whose head-quarters may be outside New Zealand.

Under the Assessment Act of 1891 all lands and improvements were valued by Assessors appointed by the Government. To the values thus ascertained owners had the right to object. Owners were required, in addition, to make returns of their land and also of the mortgages due to and by them. Objections, if not allowed by the Commissioner on an Assessor's report, were referred to a Board of Review and either allowed in whole or in part, or disallowed, according to the evidence. The reviewers were, as a rule, chosen from among residents in the neighbourhood acquainted with the values of land.

By the Amendment Act of 1894 periodic triennial assessments were abolished, and the existing valuations continued for the present, subject to the right of objection and review. Land-owners may call for an assessment of their land not later than the 31st day of March in any year, and the Commissioner has the right to make an assessment of any land in any district at such times as he may choose. All such assessments are subject to the right of objection and review.

The provisions in the earlier Acts still remain in force, whereby an owner, if dissatisfied with the value placed upon his land, may call upon the Commissioner either to reduce the value to the amount at which it is included in the owner's return, or to purchase it at that figure.

If the Commissioner is of opinion that any land has been undervalued, he may call upon the owner to agree to such higher value as he considers to be the true value; and, should the owner not so agree, the Commissioner may, with the approval of the Government, purchase the land at 10 per cent. over the owner's value.

Owing to the general fall in the prices of produce, land-values in most districts have receded; and, seeing that a general assessment costs at least £25,000, it was not considered necessary to go to such an expense to further establish a well-recognised fact. For the present, therefore, objections to the existing assessments have been invited, and the invitation has been largely responded to — indeed, so many objections from owners throughout the colony were received, that more time than anticipated was required to deal with them. The results show that the shrinkage in values has not been so great as was expected.

It has been recognised for some time that Native lands in the occupation of European tenants, and mortgages held by Natives, were not exempted from taxation by the original Act of 1891. Whatever grounds there may be for exempting land occupied by Natives as Native land the title to which has not been ascertained, there does not appear to be any sound reason why Native lands from which rent is being received, and which have benefited equally with other lands from the progress of settlement and the expenditure of public money, should any longer be treated as exempt. The department therefore intends to enforce the ordinary land-tax, collecting the tax through the tenants, who will deduct it from the rents payable. In view of the extreme difficulty of correctly grouping the lands belonging to tribes or individual Natives, and the fact that many of the lands are inalienable, the Government have not considered it advisable to collect the graduated tax on these lands.

THE INCOME-TAX.

Both the number of income-tax payers and the amount of tax received may appear at first sight smaller than might be expected from the population of New Zealand, but it should be remembered that all incomes from land and mortgages are exempt, the unimproved value of the former and the capital value of the latter being chargeable with land-tax. The statutory exemption of £300, *plus* life-insurance premiums up to £50, renders a very large number of employés and small traders exempt from the tax, and, as companies pay the tax on profits, dividends are not returnable by their shareholders. The omission of all incomes derived from rents, mortgages, the use and produce of land, and shares in public companies, explains both the smallness of the number subject to income-tax and likewise the comparatively inconsiderable contribution to the revenue.

Objections to income assessments are heard in private before the Stipendiary Magistrate.

It would be impossible to indicate the number and variety of questions which arise daily in connection with income assessments, much less to give any intelligent account of how they are dealt with. The department has endeavoured to lay down certain definite rules for its guidance in the greater number of cases, and a memorandum embodying these has been circulated among all who have been called upon to make returns. It is, however, much too lengthy to introduce here.

Amongst the questions to which special attention has lately been given is that of the depreciation of plant and machinery, and the amount to be allowed as a deduction in this behalf. The Amendment Act of 1894 admitted, amongst deductions, an allowance for depreciation of plant and machinery over and above what might be taken credit for as repairs and renewals. The allowance was, by law, fixed at "what might be considered just by the Commissioner," but the Chief Inspector of Machinery is, in this matter, the expert adviser of the department, and he fixes the rates to be allowed on the different classes of machinery. There were naturally some differences of opinion between owners of machinery and the department, but in all cases, when the matter has been fully explained, owners have come to see the fairness of the allowance fixed by the Inspector. Only in the case of steam-vessels has the Inspector found it necessary to alter the scale first laid down. The rule formulated for the Inspector's guidance was founded upon English decisions in reported cases, and may be briefly summarised as follows: An allowance should be made of such an amount, over and above what is expended in renewals and repairs, as is sufficient to maintain plant and machinery in a profit-earning condition, although not in that degree of perfection which would make the plant and machinery marketable at its original cost. In other words, it is not contended that the allowance is such as will provide against the loss of capital invested, but merely such an amount as will maintain the plant and machinery in an income-earning condition, where repairs and renewals are insufficient to do so.

Obsolete machinery is also allowed for when the machinery has been actually discarded, and here the amount to be allowed must bear the same proportion to the whole cost as the time the tax has been in operation bears to the life of the machine. An engine discarded in the third year of the tax—the life of the engine being, say, twenty years—would be allowed for to three-twentieths of its original value; less, of course, the annual amounts that had been allowed for depreciation for those three years. Machinery superseded by something better, but kept in reserve in case of a breakdown, would not be allowed for.

All through, the allowances for losses, out-goings, expenses, and depreciation are on a more liberal scale than in England.

The department is now taking steps to reach firms and companies which do business in the colony, but have neither premises, stock, nor any staff worth mentioning. By escaping the tax, such firms and companies are believed to gain an advantage over their resident competitors.

In order to comply with the law, the agent or representative of the non-resident trader must make a return of all orders or business obtained by him.

It should be mentioned here that, as in the case of all companies, the statutory exemption of £300 is not allowed to absentees, whether firms or individuals.

Further regulations have been issued for levying income-tax on the profits earned by shipowners whose head-quarters are beyond the colony. The plan adopted is to require a return of the outward freight and passenger lists, and to levy the ordinary rate of tax upon 5 per cent. of the total returned.

To repeat: The object of these regulations is, in the first place, to induce or compel compliance with the law, so that returns shall be made and tax paid in the ordinary way, and not under any special provisions; and, secondly, to prevent non-resident traders and shipowners from obtaining an advantage over those established in the colony.

YIELD OF TAX.

The revenue collected during 1894–95 was £370,000, of which the land-tax contributed £279,000, and the income-tax £91,000. About £500 of land-tax was outstanding on the 31st March, 1895, consisting almost entirely of amounts which could not, for various reasons, be immediately recovered. Income-tax outstanding on the same date amounted to about £2,000. This latter sum was due mainly from persons in business who, for want of knowledge, had made incorrect returns and whose amended assessments had only recently been issued. The total amount recovered from the investigation of returns during 1894–95 was £14,000, in addition to the £2,000 uncollected.

The process of examining returns is still proceeding, and it is expected that a further considerable sum will be realised during the coming year.

The world-wide depression in business will undoubtedly affect this branch of the New Zealand revenue for the coming year, but the data to hand do not at present warrant the department in hazarding a conjecture as to how much the shrinkage will amount to.

RATES OF TAX.

The rates of tax at present are: The ordinary land-tax is 1d. in the pound; the graduated tax commences at £5,000, at ⅛d. in the pound on the unimproved value, and rises to 2d. where the unimproved value of an owner's land is £210,000, or exceeds that sum. The rate of income-tax is 6d. in the pound on the first taxable £1,000—*i.e.*, after deducting the £300 exemption—and 1s. in the pound on taxable incomes over £1,000. That is, a person having an income of £1,900 would be thus taxed: £300 would be exempted; £1,000 would pay 6d. in the pound; and the remaining £600 1s. in the pound; making a total of £55 a year. The tax on an income of £400 would be at 6d. on £100, equal to £2 10s. Income-tax is levied on companies at the rate of 1s. in the pound, and no exemption is allowed. The exemption is also disallowed in the case of persons not domiciled in New Zealand.

The schedule of rates of graduated land-tax is given below:—

Where the value is £5,000 and is less than £10,000, one-eighth of a penny in the pound sterling.

Where the value is £10,000 and is less than £15,000, two-eighths of a penny in the pound sterling.

Where the value is £15,000 and is less than £20,000, three-eighths of a penny in the pound sterling.

Where the value is £20,000 and is less than £25,000, four-eighths of a penny in the pound sterling.

Where the value is £25,000 and is less than £30,000, five-eighths of a penny in the pound sterling.

Where the value is £30,000 and is less than £40,000, six-eighths of a penny in the pound sterling.

Where the value is £40,000 and is less than £50,000, seven-eighths of a penny in the pound sterling.

Where the value is £50,000 and is less than £70,000, one penny in the pound sterling.

Where the value is £70,000 and is less than £90,000, one penny and one-eighth of a penny in the pound sterling.

Where the value is £90,000 and is less than £110,000, one penny and two-eighths of a penny in the pound sterling.

Where the value is £110,000 and is less than £130,000, one penny and three-eighths of a penny in the pound sterling.

Where the value is £130,000 and is less than £150,000, one penny and four-eighths of a penny in the pound sterling.

Where the value is £150,000 and is less than £170,000, one penny and five-eighths of a penny in the pound sterling.

Where the value is £170,000 and is less than £190,000, one penny and six-eighths of a penny in the pound sterling.

Where the value is £190,000 and is less than £210,000, one penny and seven-eighths of a penny in the pound sterling.

Where the value is £210,000 or exceeds that sum, twopence in the pound sterling.

FURTHER FACTS ABOUT STATE INSURANCE IN NEW ZEALAND.

It has been previously remarked that, in making a selection of facts and figures from the available mass of statistics concerning the history and working of the Government Insurance Department of New Zealand, it is difficult to know what to reject when all that concerns this great scheme of State insurance possesses so much interest. Precedence has therefore been given to those matters which are new, or to which attention has not been drawn hitherto.

It is needless to dwell upon the foundation of the institution in 1870—at a time when New-Zealanders had poor facilities for the insurance of their lives—or to give in detail the history of the early years of the office. But it may be said that at a very early stage it was thought advisable to adopt the practice of employing paid canvassers, without whom most certainly no voluntary scheme of life insurance, however attractive, can become completely successful. Since that time the principles on which the department has been managed have been much the same as might guide any progressive and soundly-conducted private life-insurance office.

The first policy issued by the Insurance Department was dated 26th March, 1870, so that the office may now be said to have completed its first quarter of a century. The Government Insurance Commissioner, Mr. J. H. Richardson, has supplied a consolidated revenue account of the office from the commencement until the end of the year 1894.

CONSOLIDATED REVENUE ACCOUNT FROM MARCH, 1870, TO DECEMBER, 1894.

	£		£
Premiums	3,467,421	Claims by death	990,540
Consideration for annuities	113,203	Claims by maturity ..	140,429
Interest	1,081,558	Surrenders	328,840
Fees, &c.	613	Surrender of bonus ..	92,486
		Annuities	71,436
		Commission	184,804
		Expenses of management	492,679
		Taxes	52,631
		Losses on properties foreclosed	1,711
		Investment reserves ..	43,000
		Amount of funds ..	2,264,239
	£4,662,795		£4,662,795

These figures show that during the twenty-five years embraced in the statement premiums have been received to the extent of three millions and a half, considerably over a million and a half has been returned to policyholders or their representatives, and the existing funds of the department amount to more than two millions and a quarter pounds sterling.

The investing of funds on freehold mortgage is controlled by a Board, consisting of the Colonial Treasurer, the Public Trustee, the Commissioner of Taxes, the Solicitor-General, the Surveyor-General, and the Government Insurance Commissioner, who may not lend on any property more than three-fifths of its value. There is now over half a million invested in this manner. The following summary of the most recent balance-sheet (December, 1894) shows the manner in which the assets are invested at the present time.

ASSETS AT 31ST DECEMBER, 1894.

Class of Investment.	£	Percentage of Total Assets.
Government securities	926,923	40%
Mortgages on freehold property ..	517,080	22%
Loans on policies	405,167	18%
Local bodies' debentures	171,679	7%
Landed and house property ..	162,025	7%
Cash on current account	76,506	3%
Miscellaneous assets	74,409	3%
	£2,333,789	100%

It does not appear that any explanation has been previously given of the New Zealand Government system of non-forfeiture, which is very comprehensive in its scope. Whenever a policyholder is so unfortunate as to be unable to pay his premiums, the office looks after his interests and advises him without fees or fines of any description. An account is opened in connection with the overdue policy, which is automatically kept alive as long as the surrender-value is enough to pay a quarter's premium. The policyholder is of course debited with interest on the premiums overdue, but he is kept insured as long as his account is in credit, for the department does not seek to make any profit whatever out of surrendered or lapsed policies. During the last year twenty-nine overdue policies fell in by the deaths of the persons assured under them, and, though on many of them not a penny of premium had been paid since 1886, 1887, 1888, and so on, the premiums as they fell due had been deducted by the office from the surrender-values, thus enabling the department in one year to recognise claims on twenty-nine overdue policies to the amount of £7,900, exclusive of bonuses. This feature is common to nearly all Australasian insurance offices, but it is claimed by the department that under its particular system there is accorded to individual policyholders the utmost degree of liberality consistent with justice to the general body.

The actuarial policy of the Insurance Department has from the first been based upon the advice of eminent professional men. The last valuation was conducted by the department's actuary, Mr. Morris Fox, upon general lines approved by three leading English actuaries—Messrs. A. H. Bailey, Ralph P. Hardy, and George King. The result of this valuation, covering a period of three years, was to divide a cash surplus of £140,000 amongst the policyholders, while at the same time special reserves were made in order to still further strengthen the finances of the department. The policies valued and the reserves held against them will be seen in the following summary:—

No.	Description.	Sum assured.	Percentage of Total Sum assured.	Reserves.
		£		£
17,480	Whole-life assurances, uniform premiums	5,076,503	61·2%	872,611
12,723	Endowment assurances	2,783,433	33·6%	758,810
920	Whole-life assurances, limited premiums	401,668	4·8%	226,237
376	Children's endowments and investments	28,680	0·3%	10,245
56	Miscellaneous policies, &c. ..	11,973	0·1%	2,980
31,555	..	£8,302,257	100·0%	1,870,883
154	Annuities, £7,855 per annum ..	..	..	67,707
				£1,938,590

The accumulated funds at the end of 1893 amounted to £2,128,590, so that there was a gross surplus of £190,000, of which £50,000 was carried to reserve, and £140,000 was, as already stated, divided amongst the policyholders. In future the actuarial investigation will be made every three years.

Notwithstanding the commercial depression which has been felt so severely during the past year the department has been able to secure about the normal amount of new business, the following being a condensed summary of the new policies issued during the year :—

	No.	Sum assured.
		£
Whole-life and term assurances ..	1,397	364,704
Endowment assurances	1,801	355,321
Children's endowments	30	3,588
Annuity assurances	43	5,400*
	3,271	£729,013
Annuities	30	1,165 p. ann.
Total policies	3,301	

It will be noticed that the endowment assurances issued during the year, although slightly less in amount, exceed in number the whole-life assurances by fully 400. The growing favour in which endowment assurances are held by the people is a healthy sign, showing that a real desire exists to make a provision for old age. The great majority of these endowments mature at an advanced age : those issued in 1894 mature according to the following table :—

Term of Policy.	No. of Policies.
Under 15 years	47
15 to 19 "	94
20 " 24 "	340
25 " 29 "	603
30 " 34 "	535
35 years and over	182
Total	1,801

During the year a combined insurance and annuity scheme for Civil servants was initiated. In return for monthly deductions (amounting to about £5 annually for every £100 of salary), the Insurance Department contracts to give a uniform insurance of £100 until the age of sixty is attained, and after that age an annuity varying with the age at entry. Those who elect to pay a small extra premium can have the insurance continued beyond age sixty until death. These policies, placed in a separate table, will be merged in the general business of the department, and will share in the periodical distributions of profits. At successive valuations the necessary reserves will be made to fully cover the liability which will have accrued upon each of the contracts, and consequently there will be no danger of future trouble in connection with this scheme such as has overtaken so many pension schemes as the result of inefficient conception and inexpert administration.

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* And deferred annuities securing £1,977 per annum.

The department has at the present time over 33,000 policies of all classes in existence, assuring a total amount of over nine millions sterling. The annual income from premiums and interest is £380,000, and the accumulated funds exceed two millions and a quarter.

THE PUBLIC TRUST OFFICE OF NEW ZEALAND.

By J. K. Warburton, Public Trustee.

Constitution and Objects.

The Public Trust Office was constituted by "The Public Trust Office Act, 1872." The original scope of the office and the powers of the Public Trustee have since been much enlarged, to enable the office to perform the various services and the Public Trustee to exercise the responsible and important functions for which "The Public Trust Office Consolidation Act, 1894," now provides the necessary authority.

The office is designed mainly to afford, at low rates of commission, a secure and convenient recourse in every case where a person residing either in New Zealand or abroad, and desiring to form a trust or appoint an agent or attorney in the colony, may be in doubt or difficulty as to the choice of a trustee, executor, agent, or attorney. The office is also designed to relieve those who may be appointed trustees of property in the colony, or who, after having accepted the trusts of such property, may, for various reasons, be unwilling or unable to undertake or continue the administration.

The appointment, however, of the Public Trustee, otherwise than to the administration of an intestate estate, is subject to the consent of the Board of the Public Trust Office; and the Public Trustee cannot under any circumstances accept an appointment jointly with any other person.

An appointment to be sanctioned by the Board should be such as the Public Trustee can, in the interests of the office and of the public service, be expected to carry out satisfactorily, and such as will not cast upon the office the odium of a faulty administration for which the Public Trustee would not really be responsible, or encourage private persons to undertake trusteeships with the ultimate intention of transferring them to the office as soon as they should become embarrassing.

"The Public Trust Office Consolidation Act, 1894," itself affords, in sections 12, 13, and 14, as clearly, succinctly, and comprehensively as any other form of words could do, a general idea of the object of the Public Trust Office, and of the nature of the business which the office may undertake. Those sections provide as follows:—

12. Where the Crown, the Governor in Council, or the Governor, or a public officer, or a Court, Judge, public or private corporate body, or any person, now or hereafter can appoint a trustee, executor, administrator, guardian, committee, agent, or attorney, any of such appointments may be made of the Public Trustee if he consents thereto. The duties and rights of the Public Trustee under any appointment shall be the same, subject to the express provisions of this Act, as if the appointment had been made of a private person.

13. With the consent of the Supreme Court or a Judge thereof—

Trustees, whether appointed before or after the coming into operation of this Act, may, unless expressly prohibited, and notwithstanding the terms of the trust as to the number of trustees, appoint the Public Trustee sole trustee in their place;

Executors, whether appointed before or after the coming into operation of this Act, may, unless expressly prohibited, before or after taking out probate, appoint the Public Trustee sole executor;

Administrators, with or without a will annexed, whether appointed before or after the coming into operation of this Act, may, unless expressly prohibited, appoint the Public Trustee sole administrator;

Where there are more trustees, executors, or administrators than one, any one trustee or executor (whether before or after proving a will), or any one administrator, may apply to the Supreme Court or a Judge thereof to have the Public Trustee appointed sole trustee, executor, or administrator. All applications to the Supreme Court or a Judge thereof under this section may be by petition, or in such other manner as by rules made under section twenty-eight of this Act may be provided; and the Court or Judge may, and is hereby given jurisdiction to, make such order as it or he thinks fit.

Where to the appointment of a trustee, executor, or administrator the consent of any person is requisite, and such person refuses to consent to the Public Trustee being appointed, or where the person to consent is an infant, idiot, or lunatic, or a person of unsound mind, or is absent from the colony, or is under any other disability, then an appointment of the Public Trustee may be made without such consent, if a Judge of the Supreme Court consents thereto.

Where the Crown, the Governor in Council, the Governor, or any public officer, or any Court or Judge, or any corporate body or association, or person, whether public or private, within or without the colony, desires to or can create any trust, then, unless expressly prohibited, the Crown (by the Governor), the Governor in Council, the Governor, or such public officer, Court, or Judge, corporate body, association, or person may, for the purposes of such trust, appoint the Public Trustee trustee, upon such trusts, and under and subject to such powers, provisions, and conditions, as shall be expressed.

Upon any appointment of the Public Trustee under sections twelve and thirteen of this Act, then, by virtue of the appointment, all property, rights, powers, and functions shall, without any conveyance or assignment, become thereby vested in the Public Trustee.

The Public Trustee, when appointing or acting under this Act as trustee, executor, administrator, guardian, committee, agent, or attorney, shall have the same rights and immunities as a private person acting in any of those capacities would have.

14. The Public Trustee, upon the death of any person domiciled in New Zealand, or who has property in New Zealand, who has died or shall hereafter die

within New Zealand or elsewhere intestate, shall, if he thinks fit to apply therefor, be entitled to administration.

The application may be made in any judicial district of the Court at the discretion of the Public Trustee.

Upon such application, no further proof of the death and intestacy of any person shall be required than an affidavit that, after due inquiries, the Public Trustee is satisfied that such person died intestate.

The Public Trustee shall be entitled, as of right, to such administration: Provided that if some other person within the colony who, if it were not for this section, would be entitled to such administration, applies for such administration, then the Court or Judge may grant administration to such person: Provided that it shall not be necessary for the Public Trustee, nor shall the Court or Judge require him, to give notice of such application to any such person.

THE SECURITY.—CAPITAL FUNDS AND INTEREST GUARANTEED.

The security and fidelity of the administration of the Public Trustee cannot but form a great attraction to any person who may contemplate the appointment of a trustee, executor, administrator, agent, or attorney. The Public Trust Office is a department of the Government service. The good faith of the administration is guaranteed by statute, and the colony is pledged to maintain the integrity of capital funds placed in the Public Trust Office, either without any direction for investment, or to be invested at the option of the Public Trustee in any of the securities in which, unless expressly prohibited, he may invest all capital—that is, in any of the securities authorised by section 31 of the Consolidation Act:—

(1.) In the Government securities of the United Kingdom, or of any colony or dependency thereof, issued under the authority of the Parliament or other legislative authority of the said kingdom, colony, or dependency respectively, and secured upon the public revenues thereof:

(2.) In debentures issued by any local authority under any law now or hereafter in force, secured upon general or special rates, or upon real estate held in fee-simple free from encumbrances, or upon the rents and profits of real estate held in fee-simple free from encumbrances: Provided that no greater advance shall be made where the debentures are secured upon real estate than one-half of the value of such real estate; and if the debentures are secured upon rents and profits, then no advance shall be made unless such rents and profits are sufficient to pay double the annual interest payable in respect of the advance:

"Local authority" means, for the purposes of this subsection, the Council, Board, or other authority of a city, borough, county, town district, road district, drainage district, harbour district, or river district, now or hereafter constituted under an Act of the General Assembly:

(3.) In advances by way of mortgage on the security of any real estate held in fee-simple within the colony and free from all encumbrances, to an amount not exceeding one-half of the estimated value of such estate, according to a valuation approved by the Board:

(4.) In fixed deposits in any bank of issue created or established by or under any Act of the General Assembly, or by Royal Charter, and carrying on business in the colony, or in the Post-Office Savings-Bank, or other savings-bank established in New Zealand in accordance with any law affecting such banks.

The colony further guarantees on the capital funds arising from the estates in the office, and available for investment at the discretion of the Public Trustee, a common rate of interest, to be determined from time to time by Order in Council, and to be credited quarterly, *free of all office charges of the Public Trust Office*, to the properties from which the funds arise. Thus the funds are afforded a STATE GUARANTEE,—

1. Against loss from investments in bad or insufficient securities;
2. Against loss from delay in the investment;
3. That the interest determined from time to time by Order in Council shall be regularly and punctually paid, *free of all charges of the Public Trust Office.*

A person making a will, or arranging a trust, or proposing the appointment of an agent or attorney, must always be seriously concerned as to the security of the funds; and the larger the amount of the funds the greater will be the concern for security, and the less for the rate of interest. Private executors, trustees, or agents or attorneys whose administration or conduct should be at fault, may be without the means of repairing the errors for which they are accountable; or may, in cases where their acts are justifiable, make disastrous and ruinous investments.

Those who, desiring to appoint a trustee or executor, may be fortunate enough to have among their friends one both qualified and disposed to undertake the required administration, are often unwilling to impose this responsibility upon any private person; and such will be the case even where the reluctance is not due to any concern for security, or to any fear of such a contingency as the death, or infirmity, or incapacity of the proposed trustee.

The Public Trustee, in his official capacity, never dies, never leaves the country, and never becomes disqualified or involved in private difficulties, or distrusted. By his appointment as trustee, executor, administrator, agent, or attorney, the preparation of the numerous deeds, and the consequent expense, which might become unavoidable in the case of a private appointment, are rendered unnecessary. These advantages will be readily appreciated by all who have had any experience of private appointments.

SPECIAL POWERS OF THE PUBLIC TRUSTEE.

If after the death of a person leaving a will, of which the Public Trustee is not appointed executor, three months should elapse without an application being made for probate or administration, the Public Trustee may, on applying, obtain letters of administration, unless the person entitled to probate should then apply or give satisfactory reasons for the delay. As to the estates of persons dying intestate in New Zealand or elsewhere, and domiciled in or having property in the colony, the Public Trustee is entitled as of right to the administration in cases where the persons who would otherwise be entitled to administer neglect to apply for or fail to obtain the necessary authority.

When an intestate estate to be administered by the Public Trustee is of no greater value than £250, he is authorised to assume the administration by filing in the Supreme Court an election to administer. To estates of small value it is of no little importance that the Public Trustee should be thus empowered to save them from the expense of letters of administration.

The Public Trustee may at any time exercise the necessary powers of executor or administrator for the protection of an estate, and his authority to assume this temporary power extends to testate as well as intestate estates. This authority is highly serviceable to the interests of estates in every case where a property may be suffering or in danger of suffering injury through neglect or delay to take out probate or administration. The security of property is strengthened by the existence of a power to protect, which can be invoked when protection is required.

The Public Trustee may further use a large discretion in the application of the residue of intestate estates; and he is in like manner empowered to apply, consistently with the provisions of the instruments under which he is acting, the shares of testate or trust estates towards the maintenance, education, or advancement of the beneficiaries.

Thus, in the case of an intestate estate, the Public Trustee may deal thus with the net residue:—

(1.) When not exceeding £200, he may apply it to the maintenance, &c., of the widow or infants;

(2.) When not exceeding £50, he may pay it wholly to the widow;

(3.) When there are infants entitled, and the share of an infant does not exceed £50, he may pay such share to the widow or other person for the maintenance of the infant;

(4.) When the person entitled to the residue does not claim it within three years after the death of the intestate, and the Public Trustee does not know or is unable to ascertain the existence of any next-of-kin, he may pay or transfer it wholly to the widow:

And in the case of testate or trust estates, where provisions are not expressly made for the maintenance of an infant, or where provisions are not expressly made to the contrary, the Public Trustee may apply—

(5.) The whole or part of income to which an infant is entitled in possession to the maintenance of the infant;

(6.) The capital share to which an infant is entitled in possession to the maintenance of the infant;

(7.) The half, or to the extent of £500, of the *capital share* to which an infant is entitled in reversion immediately expectant on a prior life-interest to the maintenance of the infant, on the written consent of the person having such life-interest;

(8.) The presumptive or contingent shares of infants in the capital and income, towards the maintenance of the persons of the class to whom such capital and income would be payable in certain contingencies, with the consent of the persons having prior estates or interest.

The special powers of the Public Trustee in respect to testate and trust estates—powers with which private trustees could not expect to be clothed, but which may be safely granted to an officer in the position of the Public Trustee—enable him to supply promptly and inexpensively what may be described as deficiencies or omissions in instruments of trust, and thus, so to speak, perfect an incomplete will or settlement; enable him to make, for instance, the maintenance of infants, for whose benefit an estate is to be administered under a will containing no directions for maintenance, such a charge on the estate as the testator must, from the circumstances of the case, be supposed to have intended.

The advantage which estates in the Public Trust Office must unquestionably derive from the Public Trustee's possession of such large powers of general administration affords another powerful argument in favour of the office. To sum up, in New Zealand the law provides for the estates of deceased persons a choice between two administrations, one an administration by private trustees, necessarily restricted in their powers, and subject to all the contingencies of private management; the other an administration by the Public Trustee, in which he is authorised to exercise large discretionary powers in the interest of the estates, and in which the integrity of the capital funds and his own good faith are guaranteed by the colony.

THE PUBLIC TRUSTEE AS AGENT OR ATTORNEY.

The Public Trustee's authority to accept the appointment of agent or attorney—that is, to act in effect as a public attorney, for whose conduct the colony is responsible—enables him to render a great variety of services of a temporary and subordinate character, services for which he could rarely be employed without such authority, owing to the expense in that case of the necessary deed of trust. To persons leaving the colony for a time, or desiring for other reasons to arrange for the temporary management of their property, the Public Trust Office must prove a convenience, especially in the cases where the appointment of any other agent or attorney would be unsatisfactory.

As agent or attorney for a property that may eventually become subject to a will of which he is executor, the Public Trustee acquires knowledge of great service to his ultimate administration. The person, for example, who may appoint the Public Trustee to be trustee or executor under a will, and afterwards, while yet living, may desire to be relieved of the care and management of the relative property, will find in this authority of the Public Trustee to act as agent or attorney a provision by which the desired relief can be secured through the future administrator of the estate; and the Public Trustee will, as agent or attorney, obtain a knowledge of all the circumstances of the property, and continue the ultimate administration with the profit and advantage which the estate must obviously derive from that knowledge.

GENERAL.

The draft of a will, deed of trust, settlement, or power of attorney in which the Public Trustee is to be appointed executor or trustee, agent or attorney, will, when required, be examined in the Public Trust Office free of charge, for the purpose of bringing to light any provisions which may be ambiguous, or such as the Public Trustee could not follow; and testators who may appoint the Public Trustee to be their executor should therefore submit their wills to him for the purpose of finding out whether the Board would be likely to accept the trusts, and of obtaining, without expense, a careful consideration of any objections.

Any property can be vested in the Public Trustee upon trusts defined in the deed creating the trust, and the income from such property can be paid as may be desired.

Wills of living persons, whether under such wills the Public Trustee is or is not appointed executor, may be deposited in the office for safe custody. The Courts of the colony competent to grant probate or letters of administration refer, in the case of any application for such probate or letters, to the list of wills in the Public Trust Office; so that the deposit of a will with the Public Trustee insures that it shall be forthcoming on the death of the testator, and when the administration of the relative estate becomes necessary.

In the very large number of cases where persons die intestate it is, as already stated, the duty of the Public Trustee to administer if the person who is otherwise entitled to administer neglects to apply for, or fails to obtain, letters of administration. Almost all who have realised the care and responsibility inseparable from the administration of an estate, and who understand what services the Public Trust Office is capable of rendering, and what relief may be obtained through the agency of the office, would prefer to allow an estate in which they may themselves be interested, or which they are expected to manage, to be administered by the Public Trustee. After the assets of an intestate estate have been realised and the debts and expenses paid, the Public Trustee, on receiving satisfactory proofs of kinship, distributes the residue in accordance with the law. If the relatives have to be found, the Public Trustee takes active steps to trace them.

The Public Trustee is authorised by "The Lunacy Act, 1882," to undertake the administration of the estates of lunatics in every case where no committee may be appointed for the estate; and it may be remarked as an interesting fact that of the estates of the lunatics in the asylums of the colony fully 90 per cent. are administered by the Public Trustee.

For the purpose of the administration of statutory trusts, the Public Trust Office renders very valuable and important services to the Government and to the colony. It is, and must obviously be, of great moment to the public that the administration of many funds and properties should be such as to leave no doubt that the directions of the trust will be faithfully observed. Where a fund or property of which the Government may desire to create a trust is not specially authorised by statute to be placed in the Public Trust Office the purpose is served by the execution of an ordinary trust instrument.

The administration of the Public Trustee is exposed to a stronger light of public criticism than the administration of a private trustee could be, and any reasonable complaints from the beneficiaries, or from any one, would be echoed by the Press as matters of public concern; and these considerations must be sufficient to insure a careful and strictly conscientious observance by the Public Trustee of his obligations.

The reputation and services of the office have attracted attention in the United Kingdom and in other countries, and several trusts of money belonging to persons resident abroad have already been accepted by the office.

CHARGES.

The commissions and charges which the Public Trustee is authorised to levy for the services of the Public Trust Office are calculated to be no more than sufficient to meet the expense of maintaining the department without loss; and it will be found that the charges for the administration of a property by the Public Trustee will compare very favourably with the expense of an administration by any other agency.

RETURN OF BUSINESS.

The number and value of the estates of each class in the Public Trust Office were, at the close of the years 1890, 1891, 1892, 1893, and on the 31st March, 1895, as shown in the following table :—

NUMBER AND VALUE OF ESTATES IN PUBLIC TRUST OFFICE, DECEMBER, 1890, TO MARCH, 1895.

Class.	Number of Estates					Value of Estates				
	On 31st Dec., 1890.	On 31st Dec., 1891.	On 31st Dec., 1892.	On 31st Dec., 1893.	On 31st Mar., 1895.	On 31st Dec., 1890.	On 31st Dec., 1891.	On 31st Dec., 1892.	On 31st Dec., 1893.	On 31st March, 1895.
						£	£	£	£	£
Wills and trusts	288	343	354	371	392	418,047	415,160	442,671	543,239	586,814
Intestate estates	752	794	845	868	850	75,305	83,381	81,650	84,436	80,287
Real estates	109	114	117	117	113	23,496	24,190	22,706	23,465	22,462
Lunatic estates	137	181	202	271	335	32,918	34,913	40,380	51,278	72,706
Native reserves	99	100	101	102	103	340,869	344,692	346,499	348,500	350,000
West Coast Settlement Reserves	293	293	293	293	293	349,462	350,289	350,853	400,000	450,000
Totals	1,678	1,825	1,912	2,022	2,086	1,240,097	1,252,625	1,284,759	1,450,918	1,562,269

STATE INSTRUCTION.

By Rev. W. J. Habens, B.A., Secretary for Education.

The provision made in New Zealand for public instruction under "The Education Act, 1877," is on a liberal scale. The whole cost of primary schools is borne by the State; the instruction imparted in them is wholly secular; and the committee of any school may bring into operation, within its district, certain sections of the Act for the purpose of compelling parents to send their children to school. The primary schools—"public schools" as they are designated in the Act—number 1,410. The average attendance of pupils during the first quarter of 1895 was 107,666. The salaries of teachers at the rates in force at the end of 1894 amounted to £329,265. The number of teachers receiving not less than £400 each was 5; 59 others were in receipt of not less than £300 each; 230 had less than £300, but not less than £200; 1,168 had less than £200, but not less than £100; and 2,020 (including 1,046 pupil-teachers and 176 teachers of sewing) had less than £100 each.

The country is divided into thirteen education districts, over each of which an Education Board presides, and into smaller districts, in each of which a school committee, elected by the householders, has authority, subject to the general control of the Board. The Board is elected by the school committees. The Board of an education district receives and disburses the money voted by the General Assembly for purposes of primary instruction, and, after consulting with the committee of the school district, appoints the teachers. The Boards also appoint the Inspectors; but the Inspectors work under regulations made by the Governor in Council, who also makes the regulations under which the Minister grants certificates to teachers after examination and adequate experience.

The sum of the numbers on the rolls of the several schools at the end of 1894 was 127,300. Of this number there were 31,778 in preparatory classes, and 4,002 pupils who had passed the Sixth (the highest) Standard, leaving 91,520 in the standard classes.

The numbers in the several standard classes, beginning with the class to be next presented for examination in the First Standard, were: 16,976, 17,719, 19,213, 17,370, 12,351, 7,891. Boys and girls are in the proportion of 51·8 to 48·2; and pupils under ten years old to pupils above ten are as 52·2 to 47·8. About 95 per cent. of the pupils receive instruction in drawing, and five-sixths of the girls are taught needlework.*

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* Note.—School children not over fifteen years of age, living in a neighbourhood where there is a railway-station but no public school, can obtain free second-class tickets to and from a station in the neighbourhood of the nearest primary school; and all children under fifteen can obtain free tickets to enable them to attend a private school. Also, second-class tickets are issued at 10s. a quarter to children under sixteen, to enable them to go to any school their parents choose.

The regular income of the Boards consists of a capitation allowance of £3 15s. a year for every unit of average attendance, together with a capitation grant of not more than 1s. 6d. for the maintenance of scholarships tenable in secondary schools, and a grant in aid of inspection. A parliamentary grant (varying considerably from year to year) is distributed among the Boards, and expended by them on the erection of school-buildings. The following statement shows the aggregate income and expenditure of the thirteen Boards for the year 1894:—

Dr.	£	s.	d.	Cr.	£	s.	d.
To Balances, 1st January, 1894	50,709	13	7	By Board's administration	11,425	4	8
Government grants—				Inspection and examination	12,692	5	8
Maintenance	362,388	10	8	Teachers' salaries and allowances, and training	342,072	9	3
Buildings	45,079	5	10	Incidental expenses of schools	33,058	13	2
Reserves revenues	34,761	17	5	Scholarships	7,023	3	1
Local receipts—				Interest	333	1	4
Fees, donations, &c.	2,271	14	3	Buildings, sites, plans, &c.	44,851	19	7
Rents, sales, &c.	522	11	3	Refunds and sundries	2,795	15	2
Interest	563	5	7	Balances	42,396	18	8
Refunds, deposits, &c.	352	12	0				
Total	£496,649	10	7	Total	£496,649	10	7

The secondary schools of the colony are not supported directly by the State, nor are they open to all pupils without charge. Some of these schools have endowments of land, originating in agreements between colonising companies and the early settlers, or in State grants; and some receive aid from the School Commissioners, who administer the public reserves for education. At the end of 1894 there were twenty-four schools, with an average attendance of 2,141 pupils. The aggregate income of these incorporate schools from school-fees (not including boarding-fees) was £25,156, and from endowments, £21,608.

The University of New Zealand is a corporate body which does not itself maintain a staff of professors or lecturers, but has its functions restricted to the encouragement of learning by the conferring of degrees and certificates of proficiency, and by a liberal system of scholarships. The University has a statutory grant of £3,000 a year from the Treasury, and an income of about £2,000 from the fees paid for examination and degrees. Members of Senate were formerly nominated by the Governor, but vacancies are now filled up by election, the right of election being exercised alternately by the Senate and by the Convocation or body of graduates. There are three institutions in which most of the undergraduates keep terms and receive instruction: the University of Otago, founded and endowed by the Provincial Government of Otago; Canterbury College, similarly instituted by the Provincial Government of Canterbury; and Auckland University College, established by Act of Parliament since the abolition of provinces, and endowed with a statutory grant of £4,000 a year. The number of students at each of these institutions in 1894 was as follows: Otago University, 211; Canterbury College, 326; Auckland University College, 143. As the result of the examinations at the end of 1894, degrees were conferred as follows: B.A., 42; B.Sc., 4; LL.B., 5; M.B., 2; M.A., 14. At the same examinations, 25 gained honours in Arts; 103 passed sections of examinations for degrees; 38 passed various examinations for admission to the legal profession; and 344 qualified for matriculation (31 by passing with credit at the junior scholarship examination). The number of graduates by examination is now 462, viz: B.A., 246; B.A. and B.Sc., 5; B.A. and LL.B., 10; B.A. and M.B., 3; B.Sc., 5; LL.B., 8; M.B., 17; M.A., 135; M.A. and B.Sc., 14; M.A. and LL.B., 9; M.A. and M.B., 1; M.A. and D.Sc., 1; M.A. and LL.D., 2; LL.D., 1; LL.D. and B.A., 1; M.D., 4.

In connection with Otago University there is a Medical School, and also a School of Mines; and in connection with Canterbury College there is a School of Agriculture, and also an Engineering School. Information supplied by the authorities of these institutions is appended to this article.

The Department of Education, over which the Minister of Education presides, is charged with the general administration of the public-school system. It has also the direct management of between 60 and 70 Native schools (with more than 2,500 pupils), of industrial schools, and of an institution for deaf-mutes (conducted on the pure oral system); and it takes an active interest in the instruction of the blind.

At the end of 1894 there were 1,555 names on the books of the industrial schools; 593 were living in the schools, 402 boarded out, 408 at service, and 116 on probation with their friends. Each boarded-out child is under the eye of a lady visitor, who reports once a month. The children sent to these schools are some of them merely indigent; others are vagrant; some have committed offences rendering them liable to imprisonment; some have been taken from disreputable homes. In every case the manager of the school is the legal guardian of an inmate, and the guardianship continues until the inmate is discharged by warrant under the hand of the Governor, or reaches the age of twenty-one.

THE SCHOOL OF MEDICINE, OTAGO.

The School of Medicine of the University of Otago was founded in 1876, when arrangements were made for teaching the subjects belonging to the first two years of a medical course. In 1883 steps were taken to complete the curriculum, and for more than ten years the school has been in full working-order. A complete five years' course of instruction is now available for those who wish to pursue their studies in this country; and the degrees in medicine of the University of New Zealand are granted to students of the school on passing the required examinations. A similar full recognition of the courses of study has been accorded by the Royal College of Physicians and Surgeons of England, while the instruction given has been recognised, though not so fully, by the Scottish universities and by the University of Cambridge.

The medical year consists of two sessions—a winter session, extending from May to November, and a summer session, from December to March.

The following is the list of classes:—

Biology	Practical biology.
Physics	Practical physics.
Chemistry	Practical chemistry.
Anatomy	Practical anatomy.
Physiology	Practical physiology and histology.
Pathology	Practical pathology and bacteriology.
Materia medica.	
Surgery	Clinical surgery.
Medicine	Clinical medicine.
Midwifery	Diseases of women.
Medical jurisprudence	Public health.
Diseases of the eye.	
Mental diseases.	

The Dunedin Hospital is available for the use of teachers and students; and clinical instruction in surgery, medicine, diseases of women, diseases of the eye, &c., is given there daily by the medical and surgical staff.

There are at present fifty-six students attending the various classes.

THE SCHOOL OF MINES OF THE UNIVERSITY OF OTAGO.

This institution was opened for students in the year 1879, but its teaching-staff and equipment were not completed until 1887. It is under the direct control of the Professorial Board of the University, being represented on this Board by the Professor of Mining and Mineralogy, who, in addition to the duties of his chair, has the function of director of the school in everything that concerns its inner management and working. The director must, however, submit to the consideration of the Professorial Board any changes in the established regulations and plan of instruction which he may consider advisable, as well as the granting of diplomas and certificates to students; and he has also to prepare an annual report on the work and results of the school for submission to the Chancellor and Council of the University.

For the purposes of the school, lectures and practical instruction are given by five professors, and four lecturers, in the following subjects: Mathematics, physics (lectures and laboratory practice), theoretical mechanics, applied mechanics, chemistry (lectures and laboratory practice), biology (lectures and laboratory practice), palæontology, general geology, mining geology, mineralogy, petrography, mining, general and special metallurgy, blowpipe analysis, assaying, mine- and land-surveying (with field-practice), and drawing, comprising freehand and mechanical drawing and practical geometry, in which three branches students receive instruction at the Dunedin School of Art.

There are five divisions in the mining school—viz.: I., the mining; II., the metallurgical; III., the geological; IV., the mine- and land-surveying; and V., the assaying divisions—for each of which the courses of study are specially arranged, but mathematics, physics, chemistry, mineralogy, blowpipe analysis, general geology, and drawing, form subjects of study for the students of all divisions. Besides going through the prescribed curricula, students of some of the divisions have also to fulfil certain other requirements—namely, that they produce satisfactory evidence of having for fixed periods been engaged in practical work, and that they obtain certificates of "first aid" by attending a course of ambulance lectures. Thus, students of the mining division have to work for twelve months in metal- and coal-mines, those of the metallurgical division for nine months in ore-dressing and metallurgical works, and those of the surveying division require to be employed for at least six months in the practice of mine- and land-surveying. The producing of "first-aid" certificates is compulsory only for students of the mining and metallurgical divisions.

For the mining, metallurgical, and geological divisions the course of study can be completed in three years, and in the surveying and assaying divisions in two years. The session commences, like those of the arts and science courses, in the first week in April, and examinations in the different branches of study are held in the month of October in each year. Students who have successfully passed the examinations in all the subjects prescribed for any of the first three divisions, and have fulfilled the before-mentioned requirements attached to the I. and II. divisions, regarding practical work and ambulance certificates, obtain the distinction or title with diploma of "Associate of the University School of Mines of Otago," whilst the successful passing of the examinations in the IV. and V. divisions, and compliance with the condition regarding practical work attached to the IV. division, entitles them to receive respectively certificates of "Mining and Land Surveyor" and of "Metallurgical Chemist and Assayer." The number of such diplomas and certificates granted up to the present session (1895) is as follows: 14 diplomas of associateship in the mining division, 12 in the metallurgical division, and 5 in the geological division; 12 certificates in the surveying division, and 12 in the assaying division. So far as known, all the students who were successful in obtaining these diplomas and certificates have since gained satisfactory, and some really good positions, as mine-managers, geologists, mineralogists, lecturers in mining schools, assayers, &c.

The yearly attendance of students for the first eight years, *i.e.*, up to 1887, was rather poor, owing, no doubt, to the incomplete state of the school, the number never having risen above six; but since the latter year it has varied between 16 and 26, with good prospects of keeping above 20 in the future.

Regarding the teaching facilities and equipment of the school, they are ample for all the subjects included in its plan of instruction. Thus, in physics, chemistry, and biology, the school shares the advantages of the large and well-equipped laboratories of the arts and science courses of the University, while for the special mining school subjects, such as mining, mineralogy, petrography, geology, surveying, metallurgy, and assaying, there are provided collections of geological and mining models, plans, and maps, general and special collections of minerals, rocks and thin rock-sections, goniometers, microscopes, polariscopes, surveying and levelling instruments, and a machine for cutting and grinding thin sections of rocks for microscopic examination. A small museum, containing the geological and mining models, safety-lamps, plans, maps and sections, a collection of crystal models, and a number of different collections of mineral, rock, and metallurgical specimens, is daily open to students for inspection and study. The roomy metallurgical laboratory contains 5 smelting and 5 cupelling furnaces, 7 good balances, and all the appliances and apparatus required for assays and determinations. It is further in contemplation to provide the laboratory before long with the plant necessary for extracting gold by the important cyanide of potassium process from auriferous quartz, concentrates, and tailings. The plant will deal with samples of as much as a ton in weight; and the learning and working of the process on so large a scale should be of great advantage to students.

SCHOOL OF AGRICULTURE, LINCOLN.

Director: J. Bayne, M.A. (Glasg.), B.Sc., in Agri. (Edin.).

Lecturers—Agriculture: The Director. Chemistry, general and agricultural: G. Gray, F.C.S. Natural Science: P. Marshall, M.A., B.Sc. (N.Z.). Land-surveying and Levelling, ———. Applied Mathematics and Bookkeeping: C. E. Adams, B.Sc. (N.Z.), Associate of the Institute of Actuaries. Veterinary Science: J. R. Charlton, M.R.C.V.S. (Lond.), F.E.V.N.S. (Edin).

The school of Agriculture is a branch of Canterbury College, one of the affiliated colleges of the University of New Zealand. It is situated near the township and railway-station of Lincoln, in one of the most beautiful and healthy districts of the Canterbury Plains, and is about fourteen miles by rail from the City of Christchurch.

The institution is supported by endowments of lands, students' fees, and profit of the farm, its object being to afford those intending to look to farming for a livelihood the opportunity of acquiring a thorough knowledge of the science and practice of agriculture.

The buildings are after the Elizabethan style of architecture, and can accommodate at least fifty students, each having a separate bedroom. They also include lecture-, theatre-, and class-rooms, studies, chemical and biological laboratories, library, dining-hall, hospital-room, all necessary offices, quarters for the director and for the resident teaching-staff. The laboratories are designed on the most approved principles, and are provided with all the necessary appliances for the conduct of scientific work.

The library contains a good selection of books, chiefly agricultural and scientific, and the reading-room is supplied with the leading agricultural papers and magazines, illustrated weekly, and daily papers. Candidates for admission as resident students cannot be received if under sixteen years of age; those above twenty-one years of age require to obtain the approval of the Chairman of the Board of Governors, Canterbury College, Christchurch, on a recommendation from the director of the school. Non-resident students may be received on approval of the Chairman of the Board of Governors, and are admitted to all the advantages of the institution except residence.

No examination is required prior to the admission of a student, but students who have passed the annual examination in chemistry, botany, geology, and mathematics in any of the university colleges, or who may pass in those subjects a preliminary examination conducted at the School of Agriculture, may gain the diploma of the college in three terms.

The course of instruction extends over two years, and embraces agriculture and its allied sciences, instruction being imparted by means of lectures in the laboratories, on the farm, and in the garden and orchard. The year is divided into two terms: the first, which is the commencement of the academic year, begins about the 16th January, and ends about the 23rd June; the second begins about the 23rd July, and ends about the 12th December.

The charge for instruction, board, residence, and laundering is £40 per annum, that for non-resident students being £5 per annum. All fees are payable to the Registrar, Canterbury College, Christchurch.

The Boards of Education of the colony provide a number of scholarships for competition in any of the public schools of the colony, and the holders of these are entitled to be admitted free as resident students to the School of Agriculture.

Lectures and practical farm-work are carried on as follows: On one day the first year's students receive lectures, and the second year's students work on the farm; on the following day the second year's students receive lectures, and the first year's students work on the farm; thus each student's time is equally divided between lectures and practical farm work.

Instruction is given in the following subjects: Scientific work, comprising agriculture, theoretical chemistry, practical chemistry, agricultural chemistry, theoretical agricultural botany, practical agricultural botany, economic entomology, physiography; land-surveying, levelling, plotting, mechanical drawing, applied mechanics, book-keeping; veterinary science. Practical farm-work, comprising milking, horse-grooming, ditching, hedging, ploughing, shearing, harvesting, threshing, practical knowledge of live-stock, culture of fruit and vegetables, apiculture, dairy work, carpentry, farriery, &c. To obtain the diploma of the College students must pass an examination in each of these subjects.

Examinations are held as follows: (*a*) once a week in one subject; (*b*) in June, upon the work of the first term; (*c*) in December, upon the work of the whole year. A diploma is granted by the College to students who, at the end of their second year, obtain the required number of marks at the annual examination, this diploma being the highest distinction conferred by the College.

Reports are issued twice a year to parents and guardians, containing the fullest information as to the conduct and progress of the student.

The farm on which students receive their practical instruction is 660 acres in extent, and has been so selected as to comprise soils of various qualities, from rich swamp to comparatively light and thin soil overlying shingle. The farming is carried on as nearly as possible on economic principles, and in illustration of the teaching of the lecture-room. The farm-buildings and stock-yards have been planned to be as complete as possible, whilst including only such accommodation as it is thought will be ordinarily required in the colony. The farm plant contains all the most modern implements for the cultivation of the soil; also the most modern machines for the harvesting, securing, and marketing of crops.

Students are required to take part in the regular daily work of the farm, so as to acquire a practical knowledge of every kind of farm-work, the use of implements and machinery, the management of stock, milking, and the making of cheese and butter.

Work in the garden and orchard is also required, in the growing of vegetables, in the treatment of fruit-trees, &c.

Field experiments are carried out, especially in testing the value of different methods of cultivation and rotations, the effects of different artificial manures on various crops, the suitability and comparative worth of new varieties of cereals, fodder-plants, and roots that promise to be of use to the farmer, and in such other directions as may appear desirable and practical.

Work is also carried on in the chemical laboratory. In illustrating the teachings of the lecture theatre, agricultural specimens are as frequently as possible used. Students, during their term of residence, proceed from the testing of simple substances to the quantitative analysis of manures, soils, foods, and farm and dairy produce generally. Biological laboratory work includes: Use of the microscope and the preparation of microscopic objects; examination of rust, smut, and other injurious fungi; germination of seeds under various conditions; examination of the minute anatomy of plants; cells and cell contents; diffusion of fluids in plants; rate of growth, fertilisation, maturation of seeds, &c.; organic impurities in water, &c.; the minute anatomy of injurious insects; field investigations in the life-history of injurious insects and fungi; adulteration of seeds.

In land-surveying and levelling, field-work will be undertaken at suitable times for practice in the use of instruments, in measuring land, harvest and other piece-work, and in taking levels for drainage purposes, the results of field-work being plotted, and plans drawn.

The carpenter's and blacksmith's shops are furnished with the necessary appliances. Students take their turn at work with the carpenter and blacksmith, so that they obtain practical instruction in both rough carpentry and farriery, as far as these are carried out on the farm. Students are required, under supervision of the lecturer, to personally examine animals as to soundness, and to point out the various seats of disease and nature of diseased parts. They are also required to make *post-mortem* examinations, and to make themselves proficient in the various methods of securing animals for different kinds of operations.

Finally, the School of Agriculture is one of the best institutions of the kind in the Australasian Colonies, and from the above it will be seen that it would be difficult to find any other where young men could acquire a more thorough knowledge of the principles of the science of agriculture, together with a better practical training in the art.

SCHOOL OF ENGINEERING AND TECHNICAL SCIENCE.

The School of Engineering and Technical Science occupies a wing of Canterbury College, comprising a lecture- and drawing-room capable of accommodating sixty students, an experimental research laboratory, boiler-house, specimen- and model-rooms, and offices.

The work of the school is divided into three sections:—

(*a*.) The education of students with a view to their becoming qualified engineers.

(*b*.) The imparting of technical instruction by means of evening lectures to mechanics and apprentices engaged at their trades during the day.

(*c*.) Experimental research as to the physical nature of the manufactured and natural products of the country.

(*a.*) *The Education of Engineers.*

Students who have matriculated are prepared by a four years' course of theoretical, technical, and practical work for taking the degree of Bachelor of Science in Engineering in the University of New Zealand.

The necessary lectures in mathematics, chemistry, and physics are given by the professors of these subjects at Canterbury College, the technical lectures and instruction in drawing and experimental work by the Professor of Engineering, and the practical work is obtained at the Government Workshops.

The examiners are appointed in England by the University Senate.

(*b.*) *The Technical School.*

Instruction is given in the Technical School in freehand mechanical drawing, descriptive geometry and setting-out work, mechanical drawing, applied mechanics, mechanics of machinery, the steam-engine, and strength of materials and structures, whilst special short courses of lectures are delivered to boilermakers on the design and construction of steam-generators; to millwrights on toothed-gearing; to mechanics, &c., on air-, gas-, and oil-engines, and refrigerating-machines.

The school possesses a large stock of drawing apparatus, valuable sectional and other models, and diagrams, and this stock is being constantly augmented.

(*c.*) *The Research Laboratory.*

The plant of the research laboratory comprises: A 50-ton testing-machine, of the most modern pattern, fitted with an automatic recorder. This machine is capable of receiving test-pieces up to 15ft. in length. A 2,000lb. cement- (wire and yarn) tester; a Thurston lubricating oil-tester; a cylinder oil-tester; a petroleum-tester; a fuel-tester; a pair of experimental engines, and boiler of 40-h.p., with measuring tanks, recording apparatus, &c., which can be worked as any type of engine under conditions of economy or the reverse.

With the aid of these appliances, the strength, elasticity, and physical features of metals, timbers, stones, cements, fibres, yarns, &c., are ascertained and recorded by automatically-drawn diagrams; the condition of fractured portions of structures and machines, and the strengths of joists, pillars, girders, and trusses are experimentally obtained; the lubricating value of oils is found, whilst the calorific values and the best arrangement for combustion of different descriptions of coals and other fuels are discovered.

SECTION II.

AGRICULTURE.

By M. Murphy, F.L.S.

It may be said, without fear of contradiction, that there is no part of the British dominions where agriculture, in its widest sense, can be carried on with so much certainty and with such good results as in New Zealand. The range of latitude, extending as it does from 34° to 47° south, secures for the colony a diversity of climate which renders it suitable for all the products of subtropical and temperate zones, while an insular position protects it from the continuous and parching droughts which periodically inflict such terrible losses on the agriculturist and pastoralist of Australia and South America.

Again, the climate, although somewhat variable, never reaches the extremes of heat or cold. So genial, indeed, is it that most animals and plants, when first introduced to the colony, assume a vigour unknown to them before.

North Island.

All the best forage-plants and grasses thrive most admirably, continuing to grow throughout the year with little intermission. Stock of every sort thrive and fatten rapidly on the pastures, coming to maturity at an early age without the aid of roots or condimental foods. All cereals flourish equally well, more especially Indian corn, which produces from fifty to eighty bushels per acre.

So full is the soil of plant-food that several continuous crops of potatoes and cereals may be taken with little apparent exhaustion. Wheat, oats, and barley thrive where the soil is not too rich; otherwise they produce enormous crops of straw, without a corresponding yield of corn. The tobacco-plant thrives well, as do also hops and sorghum, broom-corn, peanut, hemp, ramee or rheea (China grass), together with a large variety of economic plants, the growth of which will one day afford employment for a large population. In addition to these, oranges, lemons, limes, olives, and vines, with all the British, Chinese, and Japanese fruits, flourish abundantly, requiring but ordinary care. Potatoes are largely grown, and yield heavy crops.

Much of the country along the south-west and west coast is being rapidly taken up, and the primeval forest is fast disappearing before the settler's axe. For the most part, the soil is fertile, and the growth of grass and clover is extremely rapid and vigorous when sown on the surface after the felled timber has been destroyed by fire.

To the British husbandman it will seem almost incredible that the best pasture-grasses grow and thrive as they do with no other preparation than the ashes resulting from the burnt timber—with no ploughing and no previous loosening of the soil—this, of course, being impossible amongst the forest of stumps—and yet, in less than a year from the date of scattering the seed, this same land will fatten from five to six sheep per acre.

So rapidly are these fertile forest-lands being cleared and converted into pastures that the demand for stock (principally dairy) has greatly increased, and this demand must continue for a series of years before it is fully met.

Before the introduction of the factory system stock were so unsaleable, especially in the North Island, that little or no attention was paid to this branch of rural economy, and the supply fell to the lowest ebb. The demand which has now set in is chiefly due to the settlement of the bush-lands with small selectors and the development of the dairy industry.

Those who in the past have watched the progress of New Zealand, especially of the North Island, have always maintained that as soon as the Maori difficulties should be ended, and other impediments to settlement overcome, the prosperity of the country would advance at a very rapid rate. The time has now come, and all that is required to enhance and expedite the coming prosperity is wise legislation with respect to settlement, so that the unoccupied lands may be taken up by a thrifty class of small settlers.

There are millions of acres yet unoccupied, a great portion of which is of good quality, and only waiting the hand of man to make it carry, with very little cost, large herds of dairy stock, with flocks of long-wool and crossbred sheep. The west coast of the island is essentially a cattle-country. Considerable areas in the midland districts are adapted to long-wool sheep, as is also the country along the east coast. Much of the country may be described as being good sheep-land, a large portion of which is quite capable of carrying two sheep to the acre, and some of it as many as three or four.

MIDDLE ISLAND.

If the North Island has a splendid inheritance in her forests, the Middle Island can boast of her magnificent plain-lands, rolling downs, and vast mountain-ranges, all of which, to a greater or less degree, have already been made to contribute to the wealth of the colony.

The central portion of the Middle Island presented to the first-comers a vast plain, covered only with waving tussock-grass, offering little or no obstruction to the plough.

Travelling south, the country assumes a different character: easy, undulating downs, well watered, here and there interspersed with fertile plains, the greater portion admirably adapted for agriculture, and all of it suited for pastoral purposes.

The climate of the Middle Island is not so warm in summer nor so mild in winter as that experienced in the North Island. However, as has already been stated, there are no extremes of heat or cold. Much more might be said in praise of this portion of the colony. It is deemed necessary to say so much in order that readers may better comprehend the comparative ease with which every kind of farming is carried on in New Zealand as compared with other countries less favourably situated.

Progress of Agriculture.

Reviewing the past year from a farmer's point of view, the colony cannot be congratulated. The development of our agricultural resources has been materially affected by circumstances beyond control. The crop of wheat, oats, and barley has, however, been a fairly good one, but prices have ruled so low that many farmers have found it extremely difficult to make ends meet. Those who were in a position to hold their wheat have benefited by the rise which took place during the month of May.

A reference to the agricultural statistics on pages 186–196 shows that there has been a very material falling-off in the quantity of wheat grown, but this is accounted for by the diminished area under that cereal. It will, moreover, be observed that there is also a substantial decrease in bushels of oats. The troubles of our wheat-growers will not prove an unmixed evil: indeed, they may be said to be bearing fruit already, as farmers are being driven to the conclusion that wheat-growing as a staple crop is rapidly becoming a thing of the past.

If this be so—and it is coming to be admitted—we have the satisfaction of knowing that the humidity of our climate and the fertility of the soil are such that we can with certainty produce root-crops, grain, and forage-plants which will compare favourably with those grown in any other part of the world.

Happily, farmers are realising the position, and in a little time the method of farming hitherto in vogue will be abandoned, and one having for its object the growth of root-crops and grass, &c., will take its place. The more rapidly this system extends itself the sooner will the farming community throughout the colony feel the benefit. We are forced to this conclusion by taking a retrospective glance at the gradual decline in price of wheat during the last ten or twelve years. In May, 1882, wheat was worth 4s. 9d. to 5s. per bushel; in May, 1895, it was worth only 2s. 2d. to 2s. 5d.; while oats for the corresponding periods were worth 3s. 6d. and 1s. 6d.* It is admitted on all sides that wheat cannot be grown in the colony with any margin for profit under at least 3s. per bushel, and the crop must be a good one at that. Farmers must therefore place more reliance on the animal products of the soil. In those countries where continuous corn-growing has been practised the ultimate exhaustion of the soil has been the result; whereas stock-raising with its auxiliaries has the effect of increasing the fertility of the soil; so that the partial cessation of wheat-growing is not an unmixed evil.

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* Since the above date wheat has risen in price locally.

Since the publication of the "Official Year-book" for 1894, matters agricultural and pastoral have not prospered; indeed, it must be confessed that for many years past the range of prices for all kinds of farm produce, including wool, has not reached so low a level as that of 1894–95. It may, however, be observed, that this unsatisfactory state of things is by no means peculiar to New Zealand. Agricultural depression prevails all over the world, wherever farming in any of its numerous branches is carried on. As to the cause of this universal depression, opinions are as wide apart as the poles. While some maintain that over-production of the necessaries of life by the nations of the earth is responsible, others hold that if a bi-metallic agreement were arrived at by the principal States of the world, trade would soon revive, and the cost of production would be equalised. Whichever of these contentions is correct (if either), the fact remains that a widespread depression does prevail. To such an extent does this exist in England that rents have been reduced in some parts from 25 to 75 per cent.

In an exhaustive article on agricultural depression recently published in the "Journal of the Royal Agricultural Society of England," an insight is given into the state of agriculture, not only in England, but in most of the countries of Europe and America, proving that agricultural depression is as general as it it is deplorable. In the course of a speech delivered in October last, the French Minister of Agriculture deplored the severity of the crisis in that country—the farmers could not compete with American wheat even with a duty of 12s. 6d. per quarter; consequently rents have fallen enormously. In Spain and Portugal the depression is said to be most severe, notwithstanding that the duty on wheat is very high. It is reported that no country in the world has suffered more from this cause than Italy, where the taxation that falls upon the land is crushing. The agrarian movement in Germany is familiar to all readers of newspapers. High as the duties on grain are, prices have fallen to a serious extent, and a great deal of land has been laid down in grass. In some parts of the empire large numbers of proprietors have been forced by the continued lowness of prices to give up their holdings and emigrate. Great benefit has resulted from the multiplication of agricultural credit-banks, which have saved thousands of the peasant-farmers from the ruinous clutches of the usurers; but still large and small cultivators alike are suffering severely from the fall in prices.

In Holland, a special Commissioner reported in favour of the reduction or abolition of dues payable on transfers of land; the extension to the country generally of the *beklemricht*, a renewable lease at a fixed rent common to Groningen; increased facilities to farmers for obtaining credit—a State mortgage-bank being suggested for one thing; and a change in the land-tenancy system.

Referring to Denmark, the report goes on to say that, apart from those engaged in co-operative dairying, agriculturists of every class are feeling the results of long-continued depression. Even the dairy industry is suffering, as the Danish buttermakers are now feeling keenly the rapidly-extending competition of New Zealand in the British markets. Like Denmark, Sweden feels the fall in the price of butter from the same cause. Of Austria-Hungary we read that the depression generally prevailing among the agricultural population has exercised the minds of statesmen and economists for years past. Where the small independent farmer is not actually driven off the land by the pressure of competition and the burden of land-taxation, which is said to fall by comparison more heavily on the small than on the large landed proprietors, he is often obliged to sink into the condition of a tenant, or to see his estate broken up into small holdings. In Russia, the depression caused by the low prices of produce is so severe, that the Czar has appointed a Commission to inquire into the deplorable condition of farmers of all classes, to grant measures of relief from taxation, and to reduce interest on State loans. As to the state of things in Poland, although the harvest of 1893 was a remarkably good one, it yielded no profit to the growers, the price of wheat being below the cost of production. It is reported that, "were it not for the beetroot and potato crop, remunerative because they feed the sugar and spirit industries, the landed interest would be completely ruined."

In the United States of America the evil is not less than in other countries already referred to. Early in 1894 the United States Department of Agriculture obtained estimates from 25,000 farmers as to the cost of wheat-growing throughout the States, and these were found to average £2 8s. 8d. per acre. According to this return, there was a mean gain of nearly 10s. per acre in 1891. The mean loss in the three following years was respectively 11s. 2d., 19s. 6d., and £1 3s. 8d. per acre. Such returns must result in ruin to the American farmer. It is hoped that the free use of wheat for feeding stock, coupled with the shrinkage of area under that crop, will ultimately result in better prices.

The Argentine Republic has not escaped the general fate. A higher gold premium, however, has enabled producers of grain and meat to increase their exports greatly. With respect to wheat production, the best Argentine authorities state that growers along the seaboard, and not too far from a railway station, can grow wheat with profit at a price of £1 a quarter. It is, however, admitted that only farmers who own their land can produce wheat at this rate.

Coming to our own colonies, we find that matters in Canada are no better than in the States. The President of the Patrons of Industry, in his annual address, said: "Never in our history have we experienced such a critical time; men's hearts fail them, and many are in want." The same unsatisfactory condition of things prevails throughout the Australasian Colonies. The value of agricultural land has fallen in all, including New Zealand. A manifesto, issued by the Landowners' Defence League of New South Wales last year, states that "throughout the colony the last five years have been years of disaster to all private firms and private individuals interested in land"; that "in both town and country many men who, five years ago, were accounted wealthy because of land they owned are to-day absolutely penniless."

The trouble in South Australia is quite as bad as in Victoria.

It will thus be seen that agricultural depression, varying in intensity, has been experienced in all the principal countries of the world; a depression the extent of which has seldom been experienced before. A gleam of hope may, however, be derived from the assumption that it is not in the nature of things that the unprofitable production of any commodity can continue. It is an old saying that "when things come to the worst they must mend." Indeed, there are strong indications already of a revival of trade. Let us hope that the prospect of improvement may speedily be realised, and that better times are about to dawn upon us. At any rate, New Zealand, bad as things have been, is still in an infinitely better position than the majority of countries and colonies referred to.

The primitive mode of agriculture pursued from the foundation of the colony—viz., wheat-growing, followed by wheat, so long as the land would bear it—is rapidly giving place to a regular system of crop rotation. Large areas are now sown immediately after harvest with winter oats, for early spring feeding for sheep. An expeditious method of getting in this crop is adopted by some of the best farmers in the colony. It is as follows: Immediately the grain is removed from the paddock, oats are sown broadcast in the stubble. A cultivator is passed over the land twice in opposite directions, followed by a pair of light harrows, which completes the operation. In this way 7 acres can be completed each day with three horses, a man, and a cultivator. It is of the first importance that grain for soiling purposes should be got in before the autumn rains. The crop is fed off at least twice in the season. It is ultimately reserved for a crop of corn, which often yields from 40 to 70 bushels per acre. Farmers are giving up sowing Cape barley, for the reason that it comes to maturity rather earlier than other cereals, and is often completely destroyed by the sparrows.

The farming of the future will have for its main object the raising of wool and mutton as well as dairy produce, pork, poultry, fruit, fibre plants and seeds, &c.; and, although grain-growing will be continued to a greater or less extent, it has already ceased to hold the leading position which it formerly occupied.

This kind of farming involves, in the Middle Island at least, the growth over large areas of turnips, grass, and fodder crops, thus bringing greater fertility to the soil, and, consequently, advancing prosperity to the farming community.

CEREALS.

The Canterbury Plains, the great wheat-growing area (in the past) of the Middle Island, extend 150 miles north and south, running inland from the sea for forty miles, the whole forming an area of about 3,000,000 acres. A great portion of this vast plain is admirably adapted for the production of wheat of the best quality, the growing of which was carried on extensively in the past, more especially since the introduction of the reaper-and-binder. The collapse in the wheat markets of the world renders wheat-growing no longer a profitable industry in New Zealand—at least, for the present; we have every confidence, however, that the growing of this cereal on our best soils will again become a profitable industry in this colony. The area under wheat in Canterbury in 1894–95 was 148,575 acres, with an estimated yield of 3,613,037 bushels. The land is for the most part free from stones or impediments of any kind. Single-furrow ploughs are now rarely seen, double- and three-furrow ploughs being in general use. Three horses, occasionally four, with a man or boy, can turn over three acres per day on the plains, at a cost of 5s. or 6s. per acre. A stroke of the disc or other harrow, followed by the seed-drill and light harrows, completes the operation of sowing.

Seed-sowing commences in May, and can be continued as weather permits through the winter, and in the heavy swamp-land on into September and even October. From 1¼ to 1½ and 2 bushels of seed per acre are usually sown, the quantity increasing as the season advances.

Good results are in general obtained by feeding-off the early-sown grain with sheep, followed by the harrows and roller. The average yield on the better class of soil in favourable seasons is from 40 to 60 bushels per acre of dressed grain. The general average of the whole colony is usually 25 to 26 bushels, but this varies with the season. This discrepancy is accounted for by the fact that so much wheat is grown on the lighter soils.

Several varieties of wheat are grown, but Hunter's White, Pearl, and Velvet Chaff are the favourite kinds for winter sowing. Red and White Tuscan are usually sown in spring.

In view of the periodical attacks of rust, advantage will doubtless be taken of the experience gained by carefully-conducted experiments which have been carried on during the past few years in Victoria, New South Wales, and Queensland, where it is claimed that certain wheats have been found impervious to the attacks of rust, thus minimising the losses caused by that fungus. Several varieties are named as rust-resisting, and farmers should combine and procure these varieties in order to give them a trial. It was reported that early sowing was the best preventive measure, for the reason that the older the leaves are the tougher they become. This theory, however, has not been borne out by actual observation in the colony, as early-sown crops are also sometimes attacked, if not so severely.

Dressing the seed with genuine bluestone is found to be a certain specific for smut in its various forms.

The Oamaru (North Otago) district is famous for the quality of its wheat, grown on limestone soil.

In Otago and Southland wheat is grown, but not extensively. But these districts excel in the production of oats, which is their principal cereal crop, the respective acreages last season being 31,653 acres of wheat, yielding 830,715 bushels, and 188,911 acres of oats, yielding 5,920,187 bushels, while Canterbury produced only 3,327,998 bushels of oats.

The usual yield of oats in Otago and Southland is from 40 to 80 bushels per acre, the cost of production being about the same as wheat—viz., £2 per acre when grown out of grass-land, and £1 10s. from stubble. The varieties of oats most in favour are Winter Dun, Canadians, Sparrowbill, Tartary, and Danish.

Malting barley, of very superior quality, is grown in Nelson and Marlborough, where the soil and climate appear to be peculiarly adapted to its culture.

The total area and yield of cereals grown in New Zealand last season was: Wheat, 148,605 acres, 3,613,137 bushels; oats, 351,849 acres, 10,221,353 bushels; barley, 36,519 acres, 1,000,612 bushels; maize, 5,525 acres, 232,890 bushels; rye, 4,158 acres, 56,169 bushels; peas and beans, 13,550 acres, 395,181 bushels.

The phenomenally low prices of wheat and other cereals raises the question whether matters might not be improved by the exercise of a little more care in preparing the grain for market. Nothing but the plumpest corn should be shipped, for there can be little doubt but that a far better use can be found for the inferior grain in feeding pigs, poultry, dairy cattle, and sheep with it on the farm, thereby increasing the fertility of the soil. Carefully-dressed wheat would yield at least 65lb. to the bushel, and oats, similarly treated, would go 50lb. to the bushel measure, insuring a ready sale at the highest rate. The late Mr. Mechi, of agricultural fame in England, used to argue that, when wheat and other grain fell below a certain figure, then it paid better to drive it to market on four legs rather than on four wheels. This limit has long since been reached in New Zealand, and therefore the sooner Mr. Mechi's advice is put into practice the better it will be for all concerned.

ROOT-CROPS.

Potatoes: Potatoes are largely grown throughout New Zealand. On suitable soils very heavy crops are raised, it being no uncommon thing to dig from 8 to 10 tons per acre, although the general average is much lower, for the reason that unsuitable land is frequently devoted to this crop. The bulk of the crop is planted without manure, but, where used, bonedust, superphosphate, blood-manure, or animal guano, which may be procured of first quality from the local manure manufactories (from 1cwt. to 2cwt. per acre) is applied with good results. The potato is, however, an expensive crop to grow, costing from £5 to £6 per acre, and many farmers are now devoting their potato-land to grass. The land is usually broken out of grass, skim-ploughed in autumn, ploughed deeply in spring, and thoroughly tilled. The seed—15cwt. per acre—is then ploughed in under every third furrow, the after-culture consisting of harrowing just as the crop is appearing over ground. By this means myriads of seedling weeds are destroyed, drill-grubbing, hoeing, horse-hoeing, and earthing-up being the subsequent operations. Heavy crops of wheat, oats, barley, beans, or peas can always be relied upon after potatoes, season permitting.

Turnips : The turnip-crop has now become one of the most important in the colony. The area under this crop for 1895, according to the agricultural statistics, is 385,788 acres, as against 148,575 acres under wheat. On virgin soil turnips can always be relied upon as a certain crop without any manure, even on a single furrow and a couple of strokes of the harrow. But as most of the virgin soil in Canterbury has already been cropped, turnips cannot now be successfully grown there without the aid of manure. In the nature of things, from a climatic point of view, farm-yard manure cannot be procured in sufficient quantity; artificial manures are therefore largely used, from 1cwt. to 1½cwt. of superphosphate of lime per acre being now applied with the best results, securing ample crops of sound roots, from 15 to 30 tons per acre. The seed is sometimes sown in drills on the flat, the manure being dropped in front of the seed by the same machine, from ½lb. to 1lb. per acre of seed being used. When sown broadcast a smaller quantity will suffice. Sometimes the manure is deposited in a liquid state by machines manufactured for the purpose: this system invariably secures a rapid and vigorous braird, forcing the young plant into the rough leaf, after which it is secure from the attack of the turnip-beetle, the first enemy of the young plants' growth. So soon as the turnip-plants reach the third or fourth leaf, they are thinned in a primitive and yet efficient manner. A scuffler, made for the purpose, is drawn across the drills, bunching the turnips and thoroughly loosening the soil. The drill-grubber and scuffler are used as required till the leaves meet. This kind of culture produces capital crops. Large areas are sown broadcast, and, if found too thick, the harrows are run through them; in any case a stroke of the harrows is a great help in promoting the growth of the plant. The varieties used are Devonshire Grey for early and very late sowing; Purple- and Green-top Aberdeen are the most generally grown. Swede turnips, from their proneness to the attack of the turnip aphis, are not so much grown, though they produce enormous crops in Otago and Southland, where the climate is more suitable. The turnip-crop is generally fed off by sheep intended for freezing.

It is estimated that an acre of good turnips, with a little hay or oat-chaff, will fatten from eight to fourteen sheep. Turnip-sowing commences in November, and may be continued till the end of December. Stubble turnips may be sown in March, but this can only be considered as a catch-crop. It, however, often proves of great value, supplying an abundance of green food for ewes with early lambs. Turnip-land is usually sown with oats or barley, and sometimes spring wheat.

Rape is largely grown as sheep-feed, and may be sown either in early spring or immediately after harvest, the stubble being skim-ploughed or broken up with the new spring-tined cultivator. This crop is invaluable in the early spring, and may be fed off in time for oats or barley.

Mangolds and Carrots are largely grown in some districts. They cost more money per acre than turnips to produce, as they must be hand-hoed; nor are they so suitable a crop for cleaning the land. Turnip-sowing does not commence till November or December, affording ample time for the destruction of seedling weeds; this important opportunity is largely lost in the culture of the mangold, which is usually sown in October and November. Mangolds are, however, an invaluable crop on a stock farm, as they do not reach their primest condition until the turnip-supply is exhausted, usually in August. From 30 to 60 tons per acre is not an uncommon yield of these roots, often without the aid of manure.

Carrots are also a valuable crop, especially for horses; on sandy loams the yield reaches 15 to 20 tons per acre. Carrots impart a pleasant flavour to butter.

SEEDS.

Clover: Since the introduction of the humble-bee into New Zealand, growing clover for seed has become a lucrative industry, adding materially to the farmers' income. Clover is sown with a spring crop, usually of corn, lightly grazed in the following autumn, and then reserved for a crop of hay, which, according to the season, yields from 2 to 3 tons per acre when cut in November or early in December. Some farmers prefer feeding off with sheep in preference to mowing for hay. The after-growth is then allowed to flower and seed, which it does very freely. Thousands of humble-bees may be seen in the clover-fields during the months of January, February, and March. The seed ripens in March, and is then cut and dried, and threshed out by machines known as clover-shellers. From 200lb. to 300lb. of seed per acre is considered a good crop, and sells readily at 4d. to 6d. per pound. Thus an acre of clover may yield in hay and seed quite £10 or £11. It must, however, be stated that, while a good crop of clover-seed is a most lucrative one, it is nevertheless a most precarious one. Owing to the lateness of the season of ripening, it sometimes happens that the fertilisation is imperfect, resulting in a majority of barren heads. This has given rise to a controversy as to whether the proper bee has been introduced. The question was referred to Miss Ormerod, the English entomologist, who sent the following reply, a perusal of which may prove of interest to the readers of the Year-book; at any rate, it is worth placing on record:—

Torrington House, St. Albans, England, 4th March, 1895.

Dear Sir,—Your letter of the 23rd January reached me, together with your two packets of specimens, on the 2nd instant, and I will endeavour to reply to the very best of my power, and with great pleasure.

The specimens (thanks to your careful packing) arrived in very good order; but there is such great difficulty in naming humble-bees with absolute certainty that you must please excuse me if I am tedious.

You mention that it is believed that the bees imported to New Zealand in 1885 were of two kinds—*B. lapidarius* and *B. terrestris*—and that now it has been suggested that the kind with you is the *Bombus subterraneus*.

Of those which you have sent me, I find some are *B. terrestris* and some are *B. subterraneus*, but I do not find any specimens of *B. lapidarius*.

The *Bombus terrestris*, of which you sent me one queen and two workers, is black, with a collar of orange-yellow, the second segment of the abdomen of the same colour, and the fifth and part (that is the edge) of the preceding segment of a pale-tawny tint.

The workers are much like the female, excepting in the yellow bands being paler, and the tawny band white, or almost white. My book of reference is Fred. Smith's Catalogue of British Hymenoptera in the British Museum.

The queens of this species are the largest of those noted by Mr. F. Smith, running in length from nine to eleven lines, and your fine specimen is still longer—even now it is an inch in length. Your specimens of this kind appear to me to be so characteristic that I do not think there can be doubt regarding these.

About the *Bombus subterraneus:* This is a kind of which there are several varieties, and firstly among your specimens I have found a queen and three workers of the variety *d* of F. Smith—namely, "entirely black except the apex of the abdomen, which is fuscous." Besides this variety, there are workers which agree with his variety *b*, in having the "collar, scutellum, and sides of the basal segment with bright fulvous yellow pubescence," and the apex (understanding this as the apical segments, *not* the *extreme* tip itself) white, with a faint yellow tinge.

Of the queens, F. Smith's description of the typical colouring is as follows: "The pubescence black, the collar having on each side a faint trace of yellow, a similar obscure tinge of yellow on the lateral margin of the scutellum, the apical margin of the third segment of the abdomen and the fourth clothed with fuscous or dirty-white pubescence; on the fifth it is black; beneath the pubescence it is black; towards the apex at the sides it is fuscous."

Your specimens agree well with this description, excepting in the precise amount (in breadth) of the abdominal dirty-white band. This extends, so far as I make out in the dried specimens (for the most part) more over the fifth segment than is given by Mr. Smith, and I only see one in which I should call this black; still, in a species so excessively variable, I should not say that this difference was important. The queens of this species are stated greatly to resemble those of *B. hortorum*; but, still, besides yours possessing the characteristic of the tongue (where I can extract it) not being extremely long, I think there are sufficiently marked differences in colour to show that yours are *subterraneus*. Your friend whom you allude to as a hymenopterist will tell you of the great difficulty in differentiation of the *Bombi* after they have been dead some time; but I think I may quite safely say that you have both *B. terrestris* and *B. subterraneus* present.

You are much to be congratulated on the success of your experiment. But going on now to your further inquiries as to whether the kind of humble-bee which you have is the best for fertilising clover, and other points turning on this matter, I think I can reply best by taking them together.

I should say, with such facts as you hold in your hands to prove the serviceableness of introduction of humble-bees, that you have no occasion to go into the question in the light of private opinion. If, where "locally-grown seed was unknown as an article of commerce before the humble-bee was acclimatised," you are now having "some hundreds of tons of dressed locally-grown seed being annually bought and sold" in your market, I do not see that you could do better than continue as you are now doing.

It appears that the kinds of humble-bee which you have imported are healthy and prolific in their new country, and are doing their work well, and I certainly would not advise making any alteration.

One structural difference (as I mentioned) between *subterraneus* and *hortorum* is that the tongue of the former is shorter; such points as these may be of importance in fertilisation; and, as whatever you have got (for you may have several kinds present) is obviously doing its work satisfactorily, I should certainly advise you to let the matter remain on its present good footing.

It is very important to have a healthy bee—a kind, that is, whose health is not affected injuriously by its new locality, or you may find some infectious disorder established which may do great harm.

I think that the above replies fairly to your inquiries, but if there is any further point on which you think I might be of service, I would most gladly endeavour, at least to the best of my power, to reply to any points you wish me to investigate.

Meanwhile, pray believe me, yours very truly,

ELEANOR A. ORMEROD,
Late Entomologist of the Royal Ag. Soc. of England.

A. Carrick, Esq., President of C. A. Soc., Christchurch, N.Z.

Growing white Dutch and alsike clover for seed is beginning to attract considerable attention, and is likely to develop into a lucrative industry. White clover yields enormously. These clovers are not dependent on the action of the humble-bee for their fertilisation. They mature earlier, and are more easily threshed and cleaned than cowgrass or red-clover.

Grass-seed Saving: All the most valuable of the strong-growing grasses flourish throughout New Zealand. Cocksfoot has been a staple product of Banks Peninsula for many years, the soil for the most part consisting of decomposed volcanic rocks and vegetable mould. The seed is of the finest description, frequently weighing 20lb. to the bushel (12lb. being a standard bushel). Cocksfoot thrives on a very wide range of soil, from the richest to the poorest, preferring, of course, the former. It may be found on the dry stony plains of the interior green and healthy, while the surrounding herbage, introduced or indigenous, has yielded to the heat of the summer sun. Large quantities of this seed are grown in the North Island as well. Out of the total of 339,509 bushels of cocksfoot-seed produced last season, 95,048 bushels were grown in the North Island. This seed sells readily at remunerative prices.

Growing ryegrass for seed is also an important industry. Last season 531,243 bushels were gathered. Of this, the North Island contributed 118,799 bushels. The seed is usually secured by stripping; sometimes the grass is cut and tied, and afterwards threshed by machinery. The average yield is from 15 to 20 bushels per acre, weighing from 25lb. to 32lb. per bushel, 20lb. being the standard weight. A common practice is to graze the land till midsummer; to take the stock off for a few weeks, and then to run the stripper over the ground. By this primitive method 10 bushels per acre are sometimes secured. Rye grass-seed is usually in good demand, and sells readily at from 3s. to 4s. per bushel.

Meadow-fescue, one of the most valuable of all the grasses for permanent pasture on good land, is grown both in the North and Middle Islands, but as yet not very largely. There can be no doubt that the growing of grass-seeds, including the finer varieties, must become in the near future a very lucrative industry.

Small Seeds: New Zealand, from the nature of her soil and climate, offers a fine field for growing all kinds of farm and garden seeds. This circumstance has already attracted the attention of some of the larger seed-merchants of Great Britain, whose agents occasionally visit the colony with a view to inducing farmers and others to grow certain kinds of seeds. The industry is peculiarly adapted to small holdings, and well suited to young persons, the work being light and of an interesting character. Ready sale can be found for carefully-grown and carefully-cleaned garden seeds.

Pulse: Peas and beans are largely grown for pig-feeding and export; they form an excellent preparation for wheat. An extensive trade in peas of a certain description is done in the manufacturing towns of Great Britain; and efforts are now being made to secure a share of this trade for the colony by producing peas suitable for splitting for human food. The business is likely to prove a most remunerative one. Thirty bushels of peas are considered a fair crop, while 40 to 70 bushels of beans are often secured.

Cape Barley and Winter Oats: The demand for early-spring feed has resulted in the growing of these plants for forage. Their extreme hardiness renders them well adapted for autumn sowing. If sown in March they are ready for feeding-off in May; they may be fed off again in July, and on till the beginning of October, when, if allowed to run to seed, they will produce 40 to 60 bushels per acre, or they may be ploughed-in for turnips.

Tares are also grown, but not so largely as they deserve to be, especially for dairy-stock. Mixed with oats, barley, or rye, they are excellent milk-producers; and when grown luxuriantly they destroy all kinds of weeds, and leave the land in fine condition for a spring corn-crop.

Lucerne: This permanent fodder-plant thrives admirably in most parts of New Zealand, yielding three to five cuttings in the year; and, if properly attended to, it will continue to yield liberal cuttings for seven or eight years. This is a most excellent crop for the small or large farmer, furnishing, as it does, an abundant supply of succulent fodder, in deeply-cultivated rich soils, during the drier months of midsummer, as well as in the early spring.

EUROPEAN FLAX.

With a view of encouraging the growth of this fibre-plant, the Minister of Agriculture for Victoria offered some years ago a bonus of £2 per acre for every acre grown of this crop, and £5 per ton for the fibre produced. The result has been that large areas have been sown in that colony, and the industry bids fair soon to become of importance. This is a wise step, because the successful introduction of this industry would afford a large amount of employment, most of it being of a light character and well adapted to small holdings.

Some few years ago an attempt was made to establish this industry in Canterbury, but wheat was then realising a fair price, farmers did not take kindly to the new idea, and the project failed. Good, however, resulted from the attempt, for it was proved beyond doubt that the flax-plant would grow most luxuriantly, producing plenty of fibre (and seed when allowed to ripen). It was found that 5cwt. to 7cwt. of fibre could be produced per acre, and from 15 to 30 bushels of seed, which under proper management should find a lucrative sale for use in the manufacture of boiled and raw linseed oil, or for export. The fact that the manufacture of oil has already been attempted, with but indifferent success, is no argument against a fresh effort being made; but it is an argument in favour of the production of the seed at a lower rate than was the case at the time referred to. The time has now arrived when the growing of flax on a large scale might again be advocated. The collapse in the wheat-market renders it necessary to open up new fields for the employment of labour, and Government may see its way to offer a substantial bonus for the production of fibre suitable, in the first instance, for the manufacture of binder-twines, commercial twines, ropes, &c., and ultimately for the manufacture of fabrics.

Sugar-beet.

The low price of wheat and other agricultural produce has again revived the question so ardently pressed by Sir Julius Vogel—viz., the cultivation of beet for sugar-making. His efforts, however, failed, as farmers could not be induced to turn their attention to the matter. The real cause of inaction on the part of farmers and others lay in this, that wheat-growing was an industry with which they were familiar, and from which a reasonable profit could then be derived with a minimum of labour. The following valuable contribution to this subject is from the pen of Mr. George Gray, Lecturer on Chemistry at Lincoln Agricultural College (Canterbury):—

> At intervals during the last twenty-five years the question as to the growth of sugar-beet, and the manufacture of beet-root sugar in New Zealand, has been brought into notice, engaged the attention of our legislators and others for a time, and afterwards lost sight of again. The subject has recently been revived in the public press, and the following paper has been written in order to bring into notice a few facts connected with this most important industry, showing what has hitherto been done in the colony, more particularly with regard to the capability of soil and climate to produce sugar beets of paying quality.
>
> In 1870 the Government committee on colonial industries recommended that a bonus of £10 per ton upon the first hundred tons of sugar and £5 per ton for every fifty tons of syrup produced from beetroot grown in the colony should be given. Afterwards negotiations were opened up with German merchants through Mr. F. A. Krull (German Consul in New Zealand), and beet seed was obtained from Germany for

trial in the colony. In 1871 the joint committees on colonial industries recommended that a bonus of £2,000 be offered for the first 250 tons of beetroot sugar, grown and produced in the colony. In 1877 the Beetroot Sugar Committee advised that excise duty should not be levied on beetroot sugar produced in New Zealand for ten years from August, 1877. In 1878 a bonus of £5,000 was offered for 500 tons of sugar produced in the North Island, and £5,000 for 500 tons produced in the Middle Island. In 1884 the Beetroot Sugar Act was passed, which provides that a bonus of ½d. per pound be paid for the first 1,000 tons of sugar produced from beetroot or sorghum grown in the colony. It also provides that excise duty, if any, shall always be ½d. per pound less than the import duty, and that if, during fifteen years from the passing of the Act, the import duty be reduced or removed, a bonus shall be paid as an equivalent.

So much has hitherto been done for the fostering of this industry in New Zealand, but without producing any effect.

Two main points have to be taken into account in dealing with this question. First, as to whether the soils and climate of New Zealand are suited for the growth of beetroot sufficiently rich in sugar to be remunerative to the manufacturers. And next the commercial aspect, whether the expensive nature of the plant required, the high price of labour, and the cost of production would allow beet sugar to compete with cane sugar, at present placed on the market at a very low price.

The latter question cannot be settled until the first is disposed of. If it can be shown that roots containing the requisite amount of sugar can be grown in sufficient quantity, and if the project is possible from a commercial point of view, doubtless it would not be long before capital would be forthcoming to enable the industry to be started.

For the purpose of arriving at some definite conclusion regarding the percentage of sugar in New-Zealand-grown beets, all the available analyses have been collected, and the results shown in the appended table.

In some respects the results are perplexing, due in many cases to overgrowth, or to insufficient care having been taken in the cultivation of the roots. The culture of sugar-beet requires probably more skill than any other farm crop. In order to insure the maximum amount of sugar it is necessary to have good loamy soil with free drainage, cultivated to at least a depth of 12in., and the plants at such distances as to insure the growth of small compact roots weighing from 1lb. to 2¾lb. Such roots have been proved to contain a higher percentage of sugar than large roots. This is well shown in the following table. Thus, if we divide the results into two groups—those obtained with roots under 2¾lb. and those above this weight—we find that in the results obtained at the Colonial Laboratory, Wellington, with roots less than 2¾lb. weight, the average percentage of sugar was 7·8, maximum 10·9, and minimum 5·2. Roots above this weight average 5·2, maximum 7·6, and minimum 2·1. None of these results indicate beet of sufficient richness to pay for extraction.

Nearly all the roots examined by Mr. Pond were under 2¾lb. weight, and gave an average of 11·0 per cent. of sugar, maximum 15 per cent., and minimum 6·4 per cent.; the latter being probably due to second growths, which tend to lower considerably the percentage of sugar. The few roots above weight gave an average of 6·4 per cent. The earlier School of Agriculture reports were obtained by Mr. F. Barkas with roots grown on the farm, all of which were not above 2¾lb. The average per cent. of sugar obtained was 9·17, maximum 11·7, and minimum 3·2. Later results obtained with the same kind of beet (White Imperial) grown at the school, by the writer, one root only being slightly overweight, gave an average of 7·32, maximum 8·20, minimum 5·78.

The beets represented at the end of the table from the Ellesmere district were obtained from seed imported by Mr. Werner from his brother in Saxony, who is a large grower of sugar-beet. The results are higher and more even, notwithstanding that many of the roots were large although planted only 10in. and 12in. apart. The small roots gave an average of 11·58 per cent. of sugar, maximum 12·27, minimum 9·79, and the large ones an average of 10·18, maximum 11·38, and minimum 8·78.

The mean percentage of all the results recorded is 8·62.

PERCENTAGE OF SUGAR IN NEW-ZEALAND-GROWN BEETS.

I.—*Results obtained in the Colonial Laboratory, Wellington.*

Variety of Beet.	Weight.	Locality where Grown.	Date of Collection.	Sugar per cent.	Remarks.
White Silesian	Lb. 3½	Wellington	1873. February	2·1	Good shape, immature.
Vilmorin	1¾	„	„	6·7	Ditto.
White Imperial	3¼	„	„	2·2	„
„	6	„	„	2·1	„
White Silesian	4	„	June	5·5	Good taper shape
Vilmorin	3½	„	„	6·5	Bad shape, forked.
„	5	„	„	5·1	„
„	4	„	„	4·2	„
White Imperial	2¾	„	„	5·2	Good taper shape, ripe.
„	2½	„	„	8·1	Ditto.
White Silesian	**2**	**N. Plymouth**	**Early in August**	**8·7**	**Well shaped, ripe.**
„	**4**	„	**Ditto**	**7·4**	„
„	**6 to 8**	**Napier**	„	**6·0**	„
„	**9 to 16**	„	„ ...	**Highest 3·1**	**Generally well shaped, nearly ripe.**
Silesian	**4**	„	...	**4·9**	
„	**4½**	„	...	**5·8**	
„	**2½**	„	...	**8·4**	
„	**3¼**	„	...	**7·6**	
	1½	**Christchurch**	...	**8·2**	
	5 to 8	**Hawera**	...	**Highest 5·1**	
	Lb. oz. 1 2	**Auckland**	...	**8·4**	
	1 10	„	...	**8·0**	
	2 10	„	...	**6·9**	
	4 4	**Hautapu**	...	**6·7**	
	...	**Hamilton**	...	**7·6**	
	...	„	...	**6·4**	
	...	„	...	**5·1**	
	...	„	...	**7·8**	
	...	„	...	**6·2**	
	...	„	...	**5·3**	
White Silesian	...	„	...	**7·4**	**Good shaped.**
	...	„	...	**9·1**	„
	Lb. about 2	**Waverley**	...	**7·1**	
	„ **4**	„	...	**6·2**	
	„ **6**	„	...	**5·1**	
	½ to 1	**Oroua Downs**	...	**10·9**	
	1½ to 2½	„	...	**7·1**	
	2½ & over	...	...	**7·3**	
	1	**Novendale**	...	**8·2**	**Excellent shape.**
	2	„	...	**7·5**	„
	3	„	...	**7·5**	„

II.—*Results obtained by Mr. J. A. Pond, Auckland.*

Variety of Beet.	Weight.	Locality where Grown.	Date of Collection.	Sugar per cent.	Remarks.
	Lb. oz.				
	2 2	Hamilton ...	...	10 95	
	1 2	„ ...	...	10·17	
	0 12	„ ...	...	13·55	
	2 2	„ ...	...	14·25	
	...	„ ...	...	14·25	
	2 7	„ ...	...	11·40	
	2 0	„ ...	...	14·25	
	5 5	Huntly .	...	4·31	
	0 12	„ ...	...	7·58	
	0 9	„ ...	...	11·87	
	1 12	Raglan ...	...	8·14	Badly formed.
Wanzlebenel Imperial	0 13	Puturimu ...	March 10	13·57	
Deppe's Silesian Imperial	1 1	„ ...	„	15·00	
Red-top Imperial ...	0 12	„ ...	„		
	1 10	Cambridge ...	April 2...	15,00	
	1 1	„ ...	„	13·57	
	1 15	„ ...	„		
	Lb.				
Wanzlebenel Imperial	1½	Alexandra .	Aug. 10	12·66	
Deppe's Silesian Imperial	1½	„ ...	„ ...	11·40	
Red-top Imperial ...	2¾	„ ...	„ ...	9·82	
	Lb. oz.				
Wanzlebenel Imperial	1 1	Tamahere ...	Feb. 8 ...	8·90	
Deppe's Silesian Imperial	1 6	„ ...	„ ...	7·50	
Red-top Imperial ...	0 9	„ ...	„ ...	8·38	
Wanzlebenel Imperial	1 2	„ ...	Mar. 26	10·55	
Deppe's Silesian Imperial	2 0	„ ...	„ ...	11·87	
Red-top Imperial ...	1 7	„ ...	„ ...	11·17	
Wanzlebenel Imperial Deppe's Silesian Imperial ... Red-top Imperial	1 3	„ ...	May 7 ...	12·79	
Wanzlebenel Imperial	2 9	„ ...	Aug. 29	7·42	
Deppe's Silesian Imperial	2 4	„ ...	„ ...	6·47	
Red-top Imperial ...	3 5	„ ...	„ ...	8·65	

III.—*Results obtained at School of Agriculture, Lincoln.*

Variety of Beet.	Weight.	Locality where Grown.	Date of Collection.	Sugar per cent.	Remarks.
	Lb.				
White Imperial ...	1¾	Lincoln ...	March 10	8·82	
„ ...	2¾	„ ...	„ 22	3·20	Largest roots.
„ ...	1⅜	„ ...	„ 28	10·80	Small roots.
„ ...	2½	„ ...	April 6	8·48	Large and round.
„ ...	1¼	„ ...	„ 6	10·40	Small and close-growing.
„ ...	1¾	„ ...	„ 27	8·96	
„ ...	2	„ ...	May 11	11·72	Leaves fading.
„ ...	2	„ ...	„ 22	9·84	
„ ...	1¾	„ ...	„ 29	9·08	Getting pithy at core.
„ ...	1½	„ ...	June 13	10·44	Few round roots left.
„ ...	12½	„ ...	„ 22	8·28	Fair-shaped root.
	Lb. oz.				
„ ...	1 8¾	„ ...	„ 22	7·12	„
„ ..	2 2½	„ ...	„ 22	5·78	„
„ ...	2 13½	„ ...	„ 22	8·09	„
	6 4	Blenheim ...	June ...	8·59	Large overgrown root.
	5 13	„ ...	„ ...	9·14	Ditto.
	3 10	„ ...	„ ...	7·84	„
	3 5	„ ...	„ ...	6·86	
	2 6	„ ...	„ ...	10·51	
	4 8	Irwell ..	„ ...	10·10	Thick short root.
	3 7	„ ...	„ ...	9·79	Ugly forked root.
	4 0	„ ...	„ ...	9·15	Forked root.
	4 1	Doyleston ...	„ ...	10·53	Long tapering root.
	4 9	„ ...	„ ...	10·76	Thick forked.
	5 12	„ ...	„ ...	8·78	Tapering, fair shape.
	2 5	Leeston ...	„ ...	13·40	Short thick root.
	3 11	„ ...	„ ...	11·38	Long, tapering.
	1 12	„ ...	„ ...	10·88	Thick, slightly forked.
	1 10	Lincoln ..	„ ...	9·79	Small forked.
	2 10	„ ...	„ ...	12·24	Long, tapering.
	3 14	„ ...	„ ...	11·01	Long, fairly tapering.

It is stated by the authorities of the United States Department of Agriculture that 13 per cent. of sugar indicates a kind of beet that can be successfully manufactured. Some other authorities give lower numbers, but, considering the difficulties that have to be contended with in the manufacture, it is better to adopt the higher standard.

Although generally the results given are sufficiently low to cast a doubt as to the successful culture of the sugar-beet in New Zealand, yet they cannot be considered as conclusive evidence against it. From Mr. Pond's results it would appear that the Waikato district is suitable for the growth of sugar-beet, and the results obtained with roots grown in the Ellesmere district are promising. The yield of roots per acre in the latter district averaged 31 tons. Mr. Werner states that he has since seen roots grown in this district of much better quality than those analysed, and thinks that better results would be obtained by sowing the seed early in October, instead of late in that month and early in November, as was the case with the roots examined. Mr. Werner has been to considerable trouble in trying to induce farmers in the district to grow sugar-beets for trial, but has not met with much success.

The same difficulty was experienced by the United States Department of Agriculture in 1891, as shown by the fact that out of 5,000 samples of seed distributed only 1,605, or less than one-third the number of samples, were returned for analysis, and with these in but few cases were the directions issued complied with. The department has consequently decided to reduce the quantity of seed distributed, and to establish an experimental sugar-beet station, where practical illustrations of the very best methods of sugar-beet culture, and the selection of "mothers" for the production of a high grade of seed would be given.

Something of this kind might be done by our own Department of Agriculture. Agricultural experiments to be of any value must be carried out with rigid adherence to known facts, and must be, moreover, systematic. A well-laid plan of operations must be first drawn up, and the conditions insisted on. Farmers, however, can seldom afford the time from their ordinary work necessary to the successful carrying-out of experiments.

COST OF WORKING A FARM IN NEW ZEALAND.

It may be thought, because remuneration for manual labour is higher in the colony than it is in Great Britain, that therefore farming operations must cost more.

This assumption is, however, erroneous. It is within the mark to assert that five hundred acres or more can be worked at less cost than it would probably take to work a hundred-acre farm in Great Britain, and for the following reasons: first, the genial nature of the climate is such that it is unnecessary to house stock during the winter months, at least in the North Island, and so the cost of attendance is saved; secondly, farming operations may be carried on continuously throughout the ploughing and sowing season; thirdly, the paddocks are so large, and usually so level, that the double- and treble-furrow plough may be worked by one man or youth with three horses. The colonial farmer has availed himself of all the most modern labour-saving machinery.

The hay-crop is simply cut one day, raked into windrows next, and in a couple more it is ready for stacking.

Wheat is cut and tied by machinery, and stooked, requiring no capping. It is frequently threshed out of the stook in favourable seasons, thereby saving the cost of stacking and thatching; but this method is not recommended except in hot, dry seasons.

The manure bill, which is such a heavy item of annual expenditure with the British farmer, is unknown or nearly so to the colonial farmer. As has already been stated, 1cwt. to 1½cwt. of superphosphates per acre is used with the turnip and other root-crops, and in a large number of cases not even so much. It will thus be seen how many advantages the colonial farmer has over the farmer of the old country.

STOCK.

Sheep: New Zealand has proved itself to be admirably adapted for the breeding of all classes of sheep, from the fine-combing merino to the strongest type of Lincoln. The merino occupies and thrives on the wild lands of the colony, from the snow-line to the border of the plains, as well as on the drier portions of the plains. The merino ewe furnishes the foundation for all the crossbred varieties. On the rich, moist soils the Lincoln and Romney Marsh flourish, while the finer English and Border Leicesters occupy the drier lands.

Crossbred Sheep: Those bred from merino ewes and long-wool rams are the most suitable for the frozen-meat trade, and are known as "freezers."

The dapper little Southdowns flourish wherever crossbreds thrive. Their more ponderous cousins, the Shropshire and Hampshire Downs, have their admirers, especially the Shropshire, which are largely used for crossing with a view to producing early-maturing lambs. English Leicesters are also much sought after for this purpose.

Since the development of the frozen-meat trade, sheep-farming in the colony has undergone a radical change. At one time wool was the chief consideration, the surplus stock finding its way into the boiling-down vat, the tallow and pelts being the only products of value. Things have marvellously altered since 1882, the inaugural year of the frozen-meat trade. Farming has assumed a new phase, sheep-raising for mutton being now its most profitable branch. Sheep rose in value to a phenomenal price, which lasted till 1893. With the decline in the value of wool, there was a fall in prices of sheep. At the present time (1895) prices are so low that it is difficult to secure a reasonable profit.* Small and large flocks of pure and crossbred sheep are now kept on all farms which are suitable for them, the object being the production of early lambs for freezing. The percentage of increase all over the colony is very high, especially in the paddocks, where 100 to 125 per cent. is not uncommon in favourable seasons, while on the hill and unimproved country it varies from 45 to 80 per cent.

Shearing commences in September, and continues till January. The usual price per hundred is 15s. to 17s. 6d. Shearing-machines are gradually coming into use, but some sheep-farmers prefer hand-shearing.

The average clips for the various breeds of sheep are approximately as follow: Merino from 4lb. to 7lb.; quarter-breds, about 6½lb.; half-breds, 7½lb,; three-quarter-breds, 8½lb.; Leicester, 10½lb.; Lincoln, 11lb. Of course, very much larger clips are obtained from special flocks, as much as 25lb. to 30lb. per sheep; but the above figures represent general averages.

The staple of New Zealand wool, especially the long-wool and crossbred, is remarkable for its freedom from breaks and other imperfections incidental to countries subject to long droughts and scarcity of feed.

The most profitable sheep for New Zealand is that which combines the best fleece and the most suitable carcase for freezing purposes, together with early maturity. This is the class of sheep which some sheep-breeders have set themselves to produce. Whether such an animal, having fixity of type, can be evolved remains to be proved; so much depends on the feed, situation, and soil.

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* Since the above was written a considerable rise in the price of wool has taken place.

The capability of New Zealand for producing mutton has not yet reached its limit. When the frozen-meat trade was first seriously considered, an assertion to the effect that the colony could find 1,000,000 sheep per annum for freezing without impairing the breeding-flocks was treated as highly chimerical by sheep-breeders of long experience. It is found, however, on reference to the statistical returns, that during the year 1893 1,830,612 sheep and lambs were exported from New Zealand; nevertheless the flocks went on increasing, numbering, according to returns made to the Agricultural Department, 20,230,829 in 1894, as against 19,380,369 in 1893, showing an increase of 850,460 sheep. There are twenty-one freezing-works in the colony, with a full freezing-capacity of 3,665,000 per annum.

The determination of Australian flock-masters to cut into the frozen-meat trade has given rise to a demand for our long-wool sheep of superior quality; New Zealand breeders have consequently been enabled to extend their operations beyond their own borders; and although the trade may not prove a very extensive or lasting one, it will give encouragement to those who have spent time and money in building up their now famous stud-flocks.

A New Zealand Sheepbreeders Association has been formed for the purpose of publishing periodically a register of stud sheep. The first volume will probably be issued this year. Three hundred entries have already been received. The work should prove of great value to breeders of pure stock.

It is more than probable that there will always be a certain demand for sires bred in New Zealand, for the reason that this climate is probably better suited than the Australian for producing robust and hardy animals. It may be well here to correct an erroneous impression which has been fostered in some quarters, and appears to have gained credence in the minds of some sheepowners in Australia. It is to the effect that merino ewes cannot lamb to Lincoln rams; and as one fact is generally considered to be worth one hundred theories, the following will serve to set the matter at rest: Mr. H. Overton, Highfield, Kirwee, a couple of years ago, purchased a draft of strong merino ewes and put some of his stud Lincoln rams to them; the result was that from 210 ewes he tailed 234 prime lambs, which averaged him £1 per head; thus showing the fallacy of the idea above referred to.

HORSE-BREEDING.

There are few, if indeed any, climates better adapted for the breeding and rearing of horses of all kinds than that of New Zealand. Horses, light and heavy, are always in demand in the

Australian Colonies, commanding remunerative prices; and it is more than probable that a lucrative trade will be done in the near future with the Western States of America. Indeed, shipments have already been made to that country of heavy Clydesdales. Some of the best blue blood of this breed has from time to time been imported from Scotland, with the result that the breed is now well established in the colony.

The light-horse stock of the colony has risen into note through the production of animals which have rendered themselves famous on the Australian turf. The demand for horses suitable for remounts for the cavalry service in India is a continuous one, affording a ready market for the proper stamp of animal. Shipments have from time to time been made to that country with considerable success, and this trade is likely to increase. There is, however, a great scope for enterprise in this direction. The breeding of horses has been of late neglected. The importation of a few really good sires for the production of carriage-horses, hunters, and hacks would be a national benefit.

CATTLE.

In February of this year—1895—there were 964,034 head of cattle in the colony.

The colony possesses all the best strains of blood, and this is evidenced by the superior class of cattle to be met with throughout the settled districts, especially in the show yards. There are two herd-books published by the Canterbury Agricultural and Pastoral Association—one for shorthorns, the other for breeds embracing Hereford, Polled Angus, Jersey, Ayrshire, Devon, and Highland—all pedigree cattle; the third volume of other breeds, just published, contains 1,200 new entries of the breeds specified. New Zealand is absolutely free from any of the diseases so disastrous to horned stock in other countries. It is said that Iceland is the only other spot on the earth which enjoys the same immunity. With a view to maintaining this enviable position, the Government have prohibited vessels carrying live stock from infected colonies touching at any of the ports of New Zealand. This action was deemed necessary owing to the discovery of a supposed case of pleuro-pneumonia on board the s.s. "Perthshire," which arrived at Lyttelton in May last, with a cargo of cattle from Queensland *en route* for England.

DAIRY STOCK.

The breeding of first-class dairy stock offers a field for profitable investment. Milking-cattle now command a comparatively high price, and will continue to do so for an indefinite period, owing to the fact that stock were allowed to run low for want of a market, which has sprung up with the building of factories. The rearing of well-bred heifer calves will amply repay all the time and trouble bestowed thereon. They must, however, be of exceptionally good quality and fine milking strains. It may be well to remark that separated milk, although relieved of its butter-fat, loses little of its feeding value; the addition of a little linseed meal will restore the fatty constituents, which, however, are not the most valuable for feeding purposes. Ground oats, wheat, or barley added to the linseed mucilage, will render calves fit for the butcher in a comparatively short time. An acre or so of European flax should be grown upon every farm where stock-rearing is carried on. The fattening of calves for export has not yet been attempted in the colony, and yet there is a very large and lucrative market for veal calves in London, ranging from £4 to £6 and £7 per head. The matter is under consideration, and may result in something practical being done, which would considerably augment the profits of the dairy. Much has yet to be done in the way of improving the dairy stock of the colony. The yield of milk from fairly good milking-cattle is approximately 500gal. per annum, although 700gal. are frequently obtained from selected herds. The average quantity of milk obtained will no doubt be increased as more attention is paid to breeding and proper feeding. The general management and feeding of dairy stock is a question demanding immediate attention. Kind treatment is essential to success; clean pastures, clear running water, and grasses of the best quality are all factors, fully recognised wherever dairying is successfully carried out.

The average yield of butter from milk passed through the separator is 1lb. for every 2½gal. of milk of 10½lb.; so that the average cow produces annually 200lb. of butter, or 500lb. of cheese, which, estimated at 4½d. the pound, will be worth about as much as the butter.

From £5 to £8 per head can now be readily obtained for young milking-stock. A few years ago they were hardly saleable at all. To the British farmer this may not appear a satisfactory value; but when it is considered that hardly any housing or hand-feeding is required, the price leaves a very good return.

THE DAIRY INDUSTRY.

This industry has grown into a very important one. It has been claimed for New Zealand that she might become the Denmark of the South without any very keen competition from the Denmark of the North. Whatever our claims may be to the above title, it is quite certain that we are having a hard fight with the Danes for supremacy in the English markets. The fall in the price of butter is due more to Danish competition than to over-production. The Danes are flooding the markets of Britain with a view to driving the Australasian out. They will certainly succeed unless the colonial dairymen take the same care as their rivals in all the details of the business. The Danish Government maintains a splendid laboratory and staff of professors, chiefly for the study of ferment in butter and milk, and almost all the milk sold is pasteurised. Everything in connection with the industry is conducted on scientific lines. The Danish dairy cattle have to be housed during the six or seven winter months. This fact gives New Zealand an immense advantage over her rival, which will, however, avail little if we continue to ignore the teaching of science. In the North Island, along the west coast, factories have sprung up in all directions. This will be the great dairying district of the colony, the humidity of its climate rendering it better adapted to this industry than any other. The luxuriance of the pastures has to be seen to be appreciated. Large tracts of bush-lands are being thrown open for small settlements, and are eagerly taken up for the most part by thrifty hard-working men. Land is procurable either by purchase, or on lease in perpetuity, on the easiest terms. Homes are being built up in all directions, dairy farming being the staple business of the occupants. The very nature of the industry renders it peculiarly well suited to small selectors.

It is hardly necessary to point out that all butter and cheese intended for export will have to be factory made, for the reasons that no other will command the highest price, and that so much more can be made of the milk by the use of the separator. One illustration will serve for our purpose. Experience has demonstrated to a certainty that 26½lb. (or 2½gal.) of fairly good milk will produce 1lb. of butter which averages 2d. per pound more than ordinary farmers' butter; whereas it takes 33lb. (or 3gal.) of milk, treated in the old-fashioned manner of setting in pans, to produce the same quantity of butter—which means exactly 50 per cent. more returns from the milk treated on the factory method.

The factory system is now well established, and with judicious supervision and care in grading, handling, and packing of butter for export, the industry should flourish and lucrative employment be secured to thousands of persons.

A great impetus will probably be given to the dairy industry by the introduction of an automatic milking machine, the invention of Mr. Reuben Withell, of Brookside, Canterbury. This machine has had many tests, the most recent being one held by the Agricultural Society of New South Wales, and has been favourably reported on.

PIGS.

These useful adjuncts to the dairy should hold a very important position on almost all arable farms. The favourite breed in New Zealand is the improved Berkshire. The large and small breeds of White Yorkshire are also to be met with, but are not so generally approved of as the black pigs. The rearing and fattening of pigs should be a profitable investment if carried out properly and on economic lines. They require no better attention than a good grass paddock, with a liberal supply of roots, a little unthreshed pea-haulm for a few weeks before killing, with plenty of water, and shelter from the sun during the warmest summer months.

Reference was made in the Year-book for 1894 to a new method of preparing mess pork, which had been introduced to the colony by an agent of a large provision firm, and would, it was claimed, create a practically unlimited demand for pigs. It is a matter for regret that these expectations have not been realised, at least to any great extent. Large numbers of pigs are now cured by what is called the dry process, which will probably develop into a large trade.

RAISING YOUNG STOCK.

It may not be generally known that young stock and pigs may be raised and fattened on separated milk, quite (or nearly) as well as on whole milk. It is only necessary to supply the fat removed by the separator. This can be cheaply done by the addition of a little linseed gruel or mucilage, made by steeping or boiling the seeds, whole or crushed, of European flax, the addition of which supplies the elements removed in the butter-fat. Every farmer ought to grow a patch of this useful plant—say, one acre, which should produce from 15 to 20 bushels of seed. The straw, if worked up, will supply all the twine and ropes required on the farm, or may be used for thatching purposes.

THE FRUIT INDUSTRY.

From the North Cape to the Bluff Hill, in the extreme south of the Middle Island, the climate and soil are, for the most part, eminently adapted for the growth of a large variety of fruits. Generally speaking, pears, plums, quinces, apricots, figs, walnuts, cherries, gooseberries, currants, strawberries, and raspberries grow luxuriantly, producing abundant crops of fruit. In the Auckland District, oranges, lemons, and limes flourish: many groves are now bearing, and afford light and pleasant employment to a large number of persons. This employment will go on increasing as the trees become older. The olive flourishes in the North Island, bearing heavy crops, and the manufacture of oil is gradually becoming an important industry.

Vine-growing is also carried on with tolerable success in many districts, tons of fruit grown under glass are sold in the Auckland markets annually. Signor Bragato, an Italian wine expert, who recently visited this colony, gave it as his opinion that there are numerous localities in both Islands admirably suited for growing vines for the manufacture of wine and raisins.

Away in the far north the banana grows and ripens its fruit, but it is not thought that it will ever enter into successful competition with those imported at so cheap a rate from the Pacific Islands.

Extensive orchards of apples have existed in Auckland for more than half a century, producing abundance of fruit of excellent quality, yielding returns equal to £40 or £50 per acre in favourable seasons, provided the trees are kept free from pests. Orchard-planting is progressing rapidly, and must one day become a very important industry. Fruit-growing is expected to pay well in Central Otago, where the climate is admirably suited for all the fruits of the temperate zone, and to progress rapidly so soon as the district is tapped by railway.

The manufacture of cider is already assuming considerable dimensions.

The drying of fruit has been fostered by the Government, who sent an expert through some of the apple-growing districts, giving practical lessons in the art of artificial fruit-drying. Large quantities of apples are annually allowed to go to waste, which might with great advantage be converted into wholesome food. A great deal might also be done in bottling fruits, and the manufacture of fruit-wines, if only for home consumption.

The manufacture of jam is carried on with much success, and might, under certain conditions, be largely extended.

EXPORTING APPLES.

This trade has not yet assumed any great dimensions. New Zealand orchardists might well take a lesson from their brethren in Tasmania, who have developed a large trade with the London market. Growers must, however, be reminded that it is folly to ship anything but the choicest varieties of dessert- and keeping-apples.

Before the planting of fruit-trees was commenced on a large scale, with a view to the export trade, little attention was paid to the varieties selected. The result is that many bearing trees have proved unsuitable to the new requirements, and are now being cut down and regrafted or replaced with more suitable kinds. According to latest advices, the following varieties of apple are said to be in most request in the London market, always commanding a quick sale at good prices—Ribstone Pippin, Cox's Orange Pippin, Waltham Abbey, Sturmer Pippin, Scarlet Pearmain, Adam's Pearmain, and New York Pippin. The soil best adapted for growing apples is a strong loam with a clay subsoil; but they will thrive in almost any kind of soil, provided it is in good heart and that water does not stagnate in the subsoil.

Owing to the comparative mildness of the New Zealand climate, all kinds of fruit-trees are forced into bearing at an earlier stage than in Great Britain.

TREE-PLANTING.

With a view to encourage the planting of trees, the Government introduced the popular American institution of Arbor Day. The 4th of August in each year is to be set apart for the purpose of the public planting of trees. Millions of trees have been planted in this way in the United States. It is to be hoped that the same happy results will attend Arbor Day in New Zealand. Our native forests are fast disappearing before the woodman's axe; it is only a question of time and supplies will have to be drawn from artificial forests. Deciduous trees—such as ash, elm, and beech—should be largely planted. A small quantity of ash grown in Canterbury has already come into use for coach-building, and has been pronounced by competent experts to be of excellent quality. Plantations of larch might advantageously be made on the southern slopes of the foot-hills skirting the Canterbury Plains and elsewhere. There can be no doubt that a demand will arise for large quantities of larch-poles for mining purposes and for scaffolding long before trees now planted would be fit for use. Trees of this description in the Old Country are fit for cutting for such purposes in about twenty years from planting, and are worth £20 per acre.

ARTIFICIAL MANURES.

This industry has now assumed important dimensions; it is incidental to the frozen-meat trade, resulting from the by-products in the shape of offal. The blood is manufactured into a manure of great value, containing from 11 to 12 per cent. of nitrogen, the other refuse being made into what is commercially known as animal guano.

PROSPECTS OF SMALL FARMERS.

Those who have watched the course of events in other countries, so far as they affect the agricultural interests of New Zealand, have come to the conclusion that New Zealand will have to pay greater attention to the quality of her agricultural exports than has been given to them in the past. Our farmers cannot hope to compete with such countries as Australia and South America, where land is so much cheaper, and where mutton and beef of good quality can be produced; for cheap meat these must command the markets of the world. Happily for New Zealand, our climate and pastures are such that we can not only produce mutton equal to the finest English or Scotch, but we can produce more per acre than can be done in Australia. Our dairy produce should be second to none. Unfortunately, however, that care which is indispensable in the manufacture of butter has not been exercised, consequently our exports have not fetched such satisfactory prices as they might have if put on the market in the best manner and of the best quality. It is suicidal to neglect the conditions under which butter of first quality can be made. Second-class butter comes into competition with margarine and other compounds.

Owing to her humid climate and fertile soil, New Zealand is peculiarly well adapted for small holdings. Men of slender means can easily make homes for themselves and their families, always provided they know something of the work they undertake, and are, with their families, willing to work hard and live frugally for a few years. It is quite possible for a man with a few cows and pigs, together with poultry and bees, to make a good living, as markets for these products are now being opened up in England. And there is a good local market if the goods are properly prepared. There is also a continuous demand for the supply of coastal and ocean-going steamers. The facilities now given for obtaining money at reasonable rates offer great inducements to persons to settle upon the land. There are thousands of acres in the North Island adapted for farming, and much land there is being taken up.

The low prices for farm produce during the last few years have, naturally, proved discouraging. It may, however, be fairly assumed that a return of prosperity will witness the settlement of the lands throughout the colony.

CONCLUSION.

A few of the salient points have now been enumerated which go to prove conclusively that, as a country for settlement, New Zealand is not surpassed by any British possession, being one where the industrious man with moderate means can live with much comfort. The land, it is true, is perhaps dearer in some districts than that which may be found in South America, South Africa, or Canada, but this difference in price is far outweighed by other considerations, such as superiority of climate, and security to life and property. Pit these advantages against the insecurity of life and property in South America and South Africa, or the rigour of Canadian winters, and the balance will be immensely in favour of New Zealand. Another great advantage enjoyed by the agriculturist of New Zealand is that he is nowhere far from the sea-board, giving him the benefit of cheap water-carriage for his produce to the markets of the world.

The foregoing notes would hardly be complete without some reference to the prevalence of small birds. Amongst other birds, the English sparrow was introduced to New Zealand some three and twenty years ago. Many of the early settlers remember his first appearance, and the pleasurable feelings elicited by the sound of his once familiar chirp, awakening reminiscences of the Old Land. New Zealand is singularly destitute of the feathered enemies of small birds, and, owing to this and to the genial climate, the sparrow and other birds have long since become so numerous that drastic methods have to be adopted to preserve the balance of power. Large sums of money are paid annually by the Road Boards for the destruction of small birds. The want, however, of concerted action on the part of farmers at the time of poisoning is responsible for the undue increase of the pest. While treating small birds as pests, it must not, however, be forgotten that before their advent farmers suffered very heavy losses from the periodical attacks of caterpillars, which frequently devastated their barley and oat crops, and that the birds are the farmers' friends in this matter. It must also be remembered that the birds live for about nine months in the year on insects and seeds of weeds; so that if accounts could be squared they would not be such debtors after all. All that can now be done is to keep them in check.

AGRICULTURAL STATISTICS.

Full information is given by the Registrar-General in the portion of this work devoted to statistics, for which see pages 186–201, *ante*.

"THE DAIRY INDUSTRY ACT, 1894."

This Act was passed during last session of Parliament, and came into force on the 23rd of October, 1894, repealing the Act of 1892. During the time the latter was in operation, the experience gained, together with the large expansion of the business, made it manifest that further legislation was necessary.

The present Act contains several important new clauses, and the working of these has already resulted in great benefit to the industry. The powers of Inspectors have been considerably extended, and they may now inspect any farm, cowshed, or premises where milk is stored, and the water supplied to cows. Should they find these in an unsatisfactory state, they may notify the owner to remedy the defects, or may prevent the sale of the milk. They are also armed with powers such as Stock Inspectors have under the Stock Act, so that they may deal with disease in stock. No person shall supply, send, or bring to a factory, creamery, or the public any milk which has been near any person or animal suffering from or infected with an infectious or contagious disease, or any milk that is tainted or sour. A new and important clause is that dealing with the cooling and aëration of milk when freshly drawn from the cow. Unfortunately, it is difficult to move milk-suppliers out of the old grooves; but as it has been proved beyond a doubt that a much larger quantity of butter or cheese can be produced from milk which has been properly cooled or aërated, surely it should be the aim of every owner of a dairy to carry out this important and simple duty. It is the intention of the department to strictly enforce the clause next season. Another new clause is that fixing the standard weight of a gallon of milk, with certain exceptions, at 10¼lb. The general rule, however, is to pay according to the percentage of butter-fat in the milk, and over this there has been considerable dissatisfaction in several districts. This is to be regretted, as upon the careful testing of the milk much of the success of the industry depends. The experts are giving this matter their attention, and it is to be hoped the difficulty will be got over next season. It should, however, not be forgotten that the farmers have, in many instances, only themselves to blame for the poor quality of their milk. Either they allow their stock to become so low in condition during the winter that, by the time the spring comes round, the cows are quite unable to stand the effects of the green grass, or they keep cows giving milk with only a small percentage of butter-fat. It should be the business of every farmer to test the milk of each of his cows, and by this means he will be enabled to find out those that are worth keeping. The largest milk-producers are not always the most profitable where milk is being sold to a factory paying according to a percentage of butter-fat. The Act provides also against the adulteration of butter or cheese by the addition of any animal-fats, or animal-, mineral-, or vegetable-oils. An alteration has been made in the mode of branding the produce, and the department now issues stencil-plates bearing a description of the contents and registered number. This, besides being in effect equal to a trade-mark, enables an Inspector to say at a glance who is the manufacturer of any particular lot. Any person, however, may add his "Registered trade-mark" if he so desires.

One of the most important clauses in the Act is subsection (1) of section 21, which gives the Governor by Order in Council power to declare that—

(*a.*) All butter shall be placed in a proclaimed cool-store at least four days prior to shipment ;

(*b.*) All cheese shall be treated in the same way, but for two days;

(*c.*) On the despatch of any butter or cheese to a cool-store a full description shall immediately be forwarded.

So far only subsection (*a*) has been brought into operation, and the whole of the butter exported this season was passed through the cool-store and frozen before being shipped.

The plan of freezing butter is not entirely new, but the difficulty in loading a vessel used to be that some was frozen and some was not, hence there was a great risk of damage owing to the range of temperatures.

In the same clause, under subsection (2), the Governor may appoint persons who—

(*a.*) Shall prior to shipment grade each lot of butter, and stamp it with the official mark ;

(*b.*) Shall prior to shipment grade each lot of butter, and stamp each keg, box, or package, found to contain inferior butter.

Subclauses (*c.*) and (*d.*) contain same provisions as regards cheese.

The official mark is ↑, and the grade marks—1 for first grade, 2 for second grade, and 3 for third grade.

Subsection (3) also provides that the dates on which the butter or cheese was manufactured shall be placed on the kegs, &c.

This season it was considered necessary to deal with butter only. Graders were appointed for the four ports of shipment—viz., Auckland, Wellington, Lyttelton, and Dunedin, and all butter on arrival at the cool store was graded and stamped. In the carrying-out of this part of the Act great interest has been taken, as, immediately after each lot was graded, a note was sent to the owner informing him of the grade, and pointing out any defects. In the earlier shipments a considerable quantity of the butter was not up to the mark, but after the faults were pointed out a great improvement was shown, and towards the end of the season very few faults could be found. There were, however, several lots showing little or no improvement; this is believed to have been in most instances due to defective cooling and aërating. It is now found imperative that factories should be supplied with a proper cooling plant.

The following remarks on the dairy industry by Mr. J. B. MacEwen are given for general information :—

> Not every agricultural country in the world can profitably engage in the export of all products of the soil, but each must consider the questions of supply and

demand, the existing condition of accessible markets, transportation facilities, and capabilities of the land, before deciding what line of farming to follow.

Great changes have been brought about of late years by competition. It is now almost useless for New Zealand, Australia, Canada, or the United States to attempt to compete with Russia, India, and the Argentine Republic in the production of wheat, because very little skill is required for its production in the last-named countries, while both living and labour are cheap there.

Dairying enables farmers to sell their labour and skill—it requires sixty times as much skill to produce one pound of butter as it does to produce one pound of potatoes—to the greatest advantage, while sustaining the substances of plant-food in the soil. When wheat to the amount of one million of bushels is exported, the fertility of the fields to the value of at least £50,000 has been removed in the grain; whereas when fine butter to the value of upwards of £200,000 is exported, no more than one hundred and fifty pounds' worth of valuable elements of plant-food has been taken from the country. It enlarges the earning-power of land per acre, thereby increasing its value. The direct cash income of the farmer is increased by the sale of milk, butter, cheese, beef, and pork. In the rearing and feeding of stock there is room for great judgment, and thus a love for agricultural pursuits may be engendered in the minds of youths who might otherwise endeavour to remain in the towns.

There are two chief reasons why the dairy industry of New Zealand must come to be one of the highest importance in the future. In the first place, it means giving work to a greater number of people by increasing the earning-power of each acre of land, and it encourages more intensive farming, which insures larger returns for capital invested. The monthly payments mean ready cash, and business of every description would respond to this influence, to the mutual benefit of all. In the second place, owing to the distance from the principal market it is most important that all exports should be in a concentrated form, so as to save freight space. This is the case with butter, cheese, and bacon.

The experience of the past dairy-year has been unexpected and somewhat disappointing, but probably not without useful lessons. It is now shown to be imperative for all interested to give their most intelligent efforts to secure and build up a national reputation for good quality of dairy produce. In England people are slow in taking to an article that they are not sure of.

The principal countries New Zealand has to battle with are Denmark for butter and Canada for cheese, and these countries have only reached their present vantage ground by many years of close attention to the requirements of the market—not trying to educate, but to please it—and by employing highly skilled persons to instruct those engaged in production and manufacture. The products of this country have so far met with favour; a demand has been established, and is increasing, but there is room for improvement in every branch at the home end of the business.

It is the intention of the Department of Agriculture to make the "dairying service" as helpful to dairymen as possible. The importance of the suppliers' interests is recognised. The success of dairying depends largely on the efforts of suppliers. Every cow must be a good one. It is difficult to say which is the best breed; but, above all others is the cow that will give the greatest quantity of milk, of the best quality, at the least cost of production, always responding to kind handling and good feeding.

The opening of dairy schools during the winter months, will, it is hoped, do good work in the way of securing uniform excellence of quality in the finished product. Managers will be invited to attend, and courses of instruction will be given in the running of separators and general machinery, butter- and cheese-making, with testing of milk by the "Babcock." Lectures and discussions will accompany the practical work. Additional help will be given by instructors visiting such factories as require assistance during the season.

The paying for milk according to quality for butter- and cheese-making is a question of great importance. It is desirable that this system be adopted throughout the country. A series of most exhaustive experiments in Canada and the United States has proved that the butter-fat in milk indicates its true commercial value, and that the "Babcock" is reliable. The system has not been so readily adopted for cheese-making as for butter-making; but experiments show that as the percentage of fat increases in milk, so in almost equal proportion does the amount of cheese produced from it. For every pound of fat delivered in the milk at the factory for butter-making, an average of about 1·10lb. of butter should be obtained if the butter-maker is skilful and has control over temperature; and for cheese-making an average of from 2½lb. to 2¾lb. of cheese. The managers are the proper persons to sample the milk and make tests; therefore it is well that all should be conversant with the work and win the confidence of the milk-suppliers. There has been dissatisfaction during the past year, which may have two principal reasons—first, a lack of knowledge on the part of suppliers as to causes of fluctuations in the tests from week to week; and, secondly, carelessness on the part of those taking the samples and making the tests. In explanation of the first reason, it has been found that the fat in milk will vary from day to day, often through rough handling of the cows, exposure to unfavourable weather, and milking at irregular intervals. In the second instance, some of the managers did not appear to realise the necessity for care in sampling and testing, and there was room for doubt as to the accuracy of the results. The sampling and testing of milk by the "Babcock" is extremely simple, but requires care and experience. In addition to the work undertaken at the dairy schools, it is the intention to publish a bulletin on the paying for milk according to quality, and the testing of milk by the "Babcock." A bulletin will also be issued on the care of milk, with hints on the breeding, feeding, and handling of cows.

The establishment of an experimental dairy-station is also being considered. If deemed advisable a small farm would be attached, and a herd of different breeds of cows secured to insure a supply of milk and allow experiments to be carried on in feeding and stabling during unfavourable weather; the providing of cheap winter feeds, such as ensilage from Indian corn, &c., and the utilization of the by-products in the production of bacon.

As to the future of the dairy industry in New Zealand, it may be expected that lower prices will be paid for milk than have been given in the past, judging from the ruling quotations of the cheese and butter market of the former year. Throughout the last year the supply from all the leading dairy countries has been exceptional, and the demand barely sufficient to clear stocks. The supply has also been continuous, affording very little opportunity of disposing of stored goods at anything like favourable rates. It is reasonable to expect that these conditions will continue, and therefore it is necessary that our products be put on the market in the best possible state. The present arrangements for freezing the butter before shipment, and keeping it frozen during transit, should give every satisfaction. The cheese is kept in a cool chamber on the ship, at a temperature of about 45° Fahr. This mean landing it in London in almost the same condition as when shipped from here, and if the cheese be properly cured before leaving the factories—about one month old—the treatment is all that can be desired. With these favourable conditions, and a uniform quality in the manufactured article, the outlook for the industry is sufficiently promising.

It must be mentioned that the profits derived from any calling are not indicated by the price or amount of money received, but by the difference between the cost and amount realised. It is doubtful if we shall ever again receive the prices of past years, unless through abnormal causes; but by closer attention at every stage, utilising the by-products to the best advantage, and practising economies, there is still a bright outlook for the future, and a certainty of fair profits and success.

Mr. Sawers, Dairy Instructor, reports as under on prices, capital of companies, and cost of buildings:—

The returns for dairy produce during the past exporting season have been somewhat disappointing to all concerned, and especially to a few speculative buyers, who, early in the season, purchased the output of a considerable number of the dairy factories. Nevertheless, New Zealand factory full cream Cheddar cheese and New Zealand creamery pure butter have held their own well against Canadian, American, European, and Australian competition in the English market. On account of enormous supplies from these sources, the ruling prices have been very low and unsatisfactory to both shippers and importers. Colonial dairymen and exporters may indeed find no solace for their losses in the knowledge that a wholesome lesson has been learned by past season's low prices; but the year's experience, if profited by, will have a far-reaching effect for good upon the future of dairy-farming in the colony. The chief lesson learned therefrom is the imperative necessity of exporting only the finest grades of butter and cheese, manufactured upon the factory-system, in order to engender uniformity of quality. Except in seasons of great scarcity—which seem, in the face of strong competition, to be few—inferior qualities will always result in a dead loss to the manufacturers, and probably to the buyers and exporters as well. During the past season great difficulty has been met with in finding buyers for secondary grades at even ruinously low prices—from 35s. to 40s. per hundredweight for cheese, and 45s. to 55s. per hundredweight for butter. The prices for first-class full-cream cheese, factory made, ranged from 40s. to 50s. per hundredweight, and for first-class creamery pure butter 70s. to 104s. per hundredweight.

These latter prices leave—after allowing for manufacturing expenses, railage from factory to port of shipment, freight, dock charges, commission, &c.—payable returns to the contributors of milk. The price paid for milk at the cheese-factories and creameries during the past season has ranged from 2¾d. to 3½d. per gallon of 10lb. to 11lb.: this gives a return to dairymen varying from £5 to £9 per cow per annum.

The nominal capital of co-operative dairy companies ranges from £1,000 to £3,000, usually in £1 shares. In most cases about three-fourths of the nominal capital is allotted, 2s. 6d. per share being paid upon application for shares, a further 2s. 6d. per share on allotment of shares in the company, the balance as may be required in calls of not more than 1s. per share per month; this is ample to meet all the requirements of a successful business, as also to provide first-class buildings and equipments for the manufacture of the produce. As a general rule, the business is first charged with interest at the rate of 5 or 6 per cent. per annum on the paid-up capital before any dividends or bonuses are declared on the milk-supply: this gives every shareholder a fair rate of interest on the capital invested in the company, and allows the factory to be worked on purer co-operative lines.

The factories and creameries are, on the whole, substantially built, and planned with a view to economy in working so as to decrease the cost of production to the lowest possible minimum compatible with the turning out of first-class goods. They are all equipped with the most modern machinery and plant, and a good number of the butter-factories and creameries are provided with mechanical refrigerators.

The approximate cost of well planned, built, and equipped cheese- and butter-factories are as follows: Cheese Factories: 800 to 1,000 cows' capacity, £1,200; 600 to 700 cows' capacity, £900; 400 to 500 cows' capacity, £750. Butter Factories: 800 to 1,000 cows' capacity, complete with mechanical refrigerator, £1,500; 600 to 800 cows' capacity, complete with mechanical refrigerator, £1,250; 400 to 500 cows' capacity, complete with mechanical refrigerator, £1,000.

Statistics of the growth of the export trade in butter and cheese will be found on page 137, *ante*.

PRACTICAL HINTS TO PRODUCERS OF BUTTER AND CHEESE.

[As appended to the report of Mr. C. R. VALENTINE, dated 4th June, 1894.]

In the manufacture of cheese and butter too much attention cannot be given to the production and treatment of the milk before it reaches the factory or dairy, and this point should be looked upon as the first step in producing finest cheese or finest butter. In many cases, even when the highest skill is exercised in the dairy or factory in the manipulation of the milk, either for cheese or butter, there has been a failure to produce the finest article, on account of the farmers themselves not paying sufficient attention to the feeding of the cows, the condition of the cowhouses, and the general production and treatment of the milk from the time it is drawn from the cow to the time it reaches the dairy.

It is not my intention to go fully into the making of cheese and butter in this report, but as the future of colonial dairy produce depends entirely in the first instance on the proper manufacture of the article, I feel I should not be doing my duty unless I referred shortly to several features in its production. I have confined my remarks to certain points, some of which, from my experience, are deserving of far more attention than is commonly bestowed on them. In many cases samples of colonial butter and cheese of secondary quality have come before my notice, the condition of which I attributed chiefly to faults which I trust my remarks will remedy.

The golden rule for a dairy-manager to follow and to instil is to be "clean"—clean in the fullest and minutest sense of the word. Every process in dairy-work, from the milking of the cow to the placing of the product on the market, must be conducted with the most scrupulous care as to cleanliness. Cowhouse, teats, cans, hands, dairy, utensils, packing-cases, must nearly approach what may best be described as "test-tube" cleanliness. The sanitary condition of the cowhouse is the most important point. Here the milk, when drawn, may absorb germs (in a dirty cowhouse) that are absolutely ruinous to the chances of a first-class dairy product. The proper cooling of the milk before being separated, in order to get rid of the animal heat, and its quick removal from the cowhouse, are points of vital importance.

Treatment of Cows.—In the treatment of cows, great care should be taken in driving them from the pasture to the cowhouse, cow-bail, or to the milking-places. They should never be hurried or made to go faster than at a walk, and on no account should a dog be allowed to assist the driver. It is very painful for cows with well-filled udders to move over the ground faster than a walk, besides, in warm weather, by hurrying the animal, there is a danger of over-heating her milk, which not only injures it but affects all other milk with which it comes in contact. During the heat of the day, in summer-time, many find it an advantage to keep their cows in, letting them out in the cooler part of the day; of course, much depends upon the shadiness of the pastures.

Another great failing is the want of kindness and gentleness to stock. Cows should be kept as quiet and as comfortable as possible, and no person should be employed in milking that the animal fears. Any nervous excitement not only lessens the quantity of milk, but depreciates its quality. Great advantage can be obtained by the proper sheltering of the cows from bleak winds and storms. We hear of cows kept out in all weathers, and oftentimes farmers are prosecuted for the adulteration of milk when they actually have not adulterated it, but the cows have done it for them by having absorbed the fats of the milk to sustain warmth in the absence of proper shelter.

The Cowhouse or Cow-bail.—Oftentimes milk is spoilt on account of the bad sanitary condition of the cowhouse. This building should be properly ventilated, and constructed in such a way as to resist the heat of summer and coldness of winter, and to insure a good circulation of fresh air without draught. Uniformity of temperature is very conducive to a regular milk-yield, and if the quantity is dependent upon the kind and amount of food given, the quality is affected by the kind of air inhaled. So far as concerns the quality of the milk, there need be no hesitation in asserting that the expense and study of a proper system of feeding is thrown away in the case of cows kept in badly-ventilated buildings, breathing an atmosphere charged with carbonic-acid gas and ammonia, the products of decomposition. The due proportions in the air are most essential to the purity of the blood of the animal, and also of the milk, which is a secretion from it. While speaking of the impurity of the blood, the milk of a cow should never be used for butter- or cheese-making at the time of her periods.

Turnips for Butter Cows.—There is a great difference of opinion in giving turnips to cows for butter-making, on account of the turnipy taste being in the butter, which of course is most prejudicial to its sale. There need be no hesitation in giving turnips to cows for butter-making if the following treatment be carried out:—

Pulp or cut up (the former is better) the turnips twelve hours before giving them to the stock, and expose them to the air. It has also been proved advantageous to give them to the cows after the milking. This will prevent a great deal of the disagreeable flavour imparted to the butter, and a further treatment, namely, in scalding the cream and thoroughly ripening it after, will get rid of what little of the objectionable flavour remains.

Ensilage.—A great deal is spoken of ensilage, and it has been proved that it is a most beneficial food for stock generally, and especially for dairy cows, but it must be of good quality. Many people have the idea that the making of ensilage is a remedy to improve half-harvested hay, but it is impossible to make good ensilage of bad material; in fact, there cannot be worse food for dairy cows than bad ensilage; it may spoil the milk of a particular cow, and that of all others which it comes in contact with. In many cases I have known of dairies of cheese and butter being spoilt on account of the cheese-making rooms being in the vicinity of a store of bad ensilage. To make ensilage properly, the crop should not be allowed to get over-ripe; it should be cut in its full succulence, loaded immediately after it is cut, and exposed to as little sun and wind as possible, although a small quantity left overnight and carried next morning will not suffer much injury. It can be made without any expense or mechanical pressure by simply adding a few layers at a time and well treading down, adding more and more at times and repeating the treading; or it can be made by placing a few planks on the top of the stack, and running the roller over them until the forage is sufficiently consolidated underneath, the planks and roller remaining on the stack until complete. Of course there are other systems which it would be outside my province to refer to. There are some admirably-designed ensilage-presses made in England which are in general use.

Milking.—The hours of milking should be regular, and each cow should be milked in regular order. Cleanliness is the first point to be considered. All dirt should be rubbed off the cow's udder, and the hands of the milker kept clean. The milking should be done gently, quickly, and perfectly; all chucking and plucking at the teats to be avoided. The first, because everything that soothes the animal is beneficial; and the last, because you obtain the richest milk, known as the "strippings," which are invaluable to butter-makers. It is a well-known fact that by dividing a cow's yield of milk into four equal parts, the last part drawn will give four times the richness of the first part drawn, which clearly shows how essential it is that the greatest care should be taken in seeing that every drop of milk is removed from the cow's udder at each milking. By failing to carry out this, not only will there be a loss in the richness of the milk, but the secretion will gradually diminish in proportion to the quantity each day left behind, as well as tend to injure the general health of the cow.

As soon as the milk is drawn from the cow it should be taken outside the cowhouse, carried as gently as possible to the dairy, and strained through a fine sieve, and the quantity entered in the dairy record. On no consideration whatever should the milk be allowed to remain in the cowhouse or shippon after the milking. No matter how much skill is exercised in seeing that the cowhouse is kept in a perfectly sanitary condition, there will always be some little taint, and, as the milk is more absorbent at a high temperature, it will naturally take up any small taint with which it comes in contact. If the distance to the dairy will not enable the milkers to carry the milk away after each cow has been milked, suitable accommodation should be found outside the cowhouse, where it may be stored until it is convenient to carry the whole to the dairy for separation. If the weather is warm or the milk intended for transit, it should be cooled down immediately after milking before any injurious change can possibly take place. It is a well-known fact that milk is preserved in proportion to the rapidity with which it is cooled down. Scientific investigations have proved beyond doubt that when milk is suddenly cooled the vital organisms (the cause of rapid decomposition) are destroyed, and the milk is consequently preserved, whereas if cooled by slow degrees these vital organisms will be found in it.

Cream-raising.—With regard to dealing with the milk on arrival at the dairy: If in the least way it has been overheated it will be found beneficial to aërate it and cool it as before referred to.

Considering the great difficulty which has to be fought against in colonial dairying—namely, the high temperature, there should not be the slightest hesitation in the adoption in every case of the centrifugal separator, the use of which is in every respect the most advantageous method of removing the cream from the milk; not only as regards the augmented and improved butter yield, but also for the freshness and good quality of the skim milk and cream.

Although some of the choicest butter sold in the English market is made from cream raised by the shallow pan and other setting systems, still this cannot be taken as an example for the colonist to follow, as in the generality of such cases the butter is made in a much cooler climate. To prevent the reputation of colonial butter being injured by those who still hold to the old system of creaming—namely, the shallow pan and other setting systems—and in order to make choicest butter by such a system, the following directions should be carried out:—

The milk should be skimmed carefully after it has stood twelve hours, taking care that what is skimmed off consists of cream, unmixed with milk. A second skimming may be made twelve hours afterwards, but the cream should not be mixed with the first cream taken off until about six to nine hours before churning. In cool weather the cream can remain on the milk for twenty-four hours, but should never be over that time. Some people imagine that as good butter can be made with cream remaining on the milk for thirty-six hours, and even forty-eight hours, as when it remains only twelve hours or twenty-four hours, but it is a very great mistake. The cream that rises first is the best, and to make choice butter the cream should be taken from the milk before it becomes old and sour. The greater the decomposition of milk the more will the cream be affected, and, as a consequence, the more difficult will it be to obtain a nice quality of butter from it.

It is strongly recommended that dairies of all sizes should adopt the centrifugal separators, now that they are made at a price within the reach of every one, as there is such an inclination in the old system of creaming to allow the cream to remain on the milk for too long a period, which, as before mentioned, prevents the production of the best butter and does much damage to the reputation of the dairy.

Ripening Cream.—In order to make good butter the cream should be properly ripened, as, if cream is churned sweet, the butter will lack that fine nutty flavour which cream "slightly ripened" gives. At the same time great care must be taken in the ripening of the cream, as over-ripe or sour cream will produce an inferior article. The proper ripening is the result of certain chemical changes that are brought on by exposure to the air. Frequent stirring facilitates ripening and secures a uniformity of the process. Temperature has a good deal to do with the ripening, because at a low temperature the chemical changes go on slowly, oxygen being the principal agent in producing these changes. If cream is wholly excluded from the air, ripening will stop, there will be no oxygen to unite with the soft fats and produce flavour, nor with the milk-sugar to produce lactic acid. Cream should therefore be kept in a pure atmosphere.

As a further advantage in churning ripened or "slightly soured" cream, it has been proved that 4 to 5 per cent., and I have proved by many experiments that even 7 to 8 per cent., more butter can be made than from sweet cream.

To ripen cream artificially (which is desirable, especially in the cold weather), heat the cream gradually to about 64° Fahr. in cold weather, or 60° Fahr. in summer, about twelve hours before churning, and add about 3 per cent. of sour cream, milk, or buttermilk. It is also important that cream should be of uniform ripeness before being churned.

Scalding the Cream.—The flavour of butter will be much improved by scalding the cream at time when the cows are fed on certain foods which produce an objectionable flavour in the butter, as with turnips, or at the time of year when the young grass appears, or at the falling of the leaves. This can be done by placing the can containing the cream in boiling water and gradually raising the temperature of the cream to 150° Fahr. When the cream has obtained that temperature it should be removed into a temperature of about 50° to cool it down (colder if possible), and at the time required for churning it should be ripened. The scalding of the cream in factories can be greatly simplified by using a large vessel jacketed with steam.

Colouring of Butter.—One of the market requirements in butter is its colour, and it will be seen from my reports on several English markets what shade is most appreciated. The fact that grass butter always has a rich shade without resorting to artificial colouring is sufficient reason on the part of consumers for suspecting that very pale butter must be of inferior quality, uniformity being the only rule that will sell butter in the present day. Late fall or spring butter made from the milk of cows fed upon hay is generally deficient in colour, and unless some artificial means be employed to give it the desired shade it will not command a price in the market equal to butter of the same texture and flavour that has been coloured. Pure annatto not mixed with water is the best colouring matter, as it prevents an uneven or streaky appearance, and should be added to the cream in the cream-pot before churning.

The amount of colouring to be used much depends upon the depth of colour required, and must be left to the discretion of the butter-maker.

The Dairy or Factory.—The best position for a dairy or factory is a quarter under ground, not too far from the cowhouse, but out of the way of odours and gases arising therefrom, and from the decomposition of manures. The windows should be covered with perforated zinc, the majority facing the south, so as insure an immunity from the hot, glaring sun in summer, the roof to be a good non-conductor, and of a material that that will not harbour insects. The dairy must be in close proximity to pure spring water, have perfect drainage, be well ventilated with pure air, and cool and dry. The best floor is of flags, smooth-surface quarries, or concrete, and should always be kept dry, as dampness tends very much to the development of organic germs, which, floating in the air by thousands, fall on the milk and attack it immediately it is brought in, and, finding it a most suitable medium for development, cause sourness, fermentation, and putrefaction. Any strong-smelling matter should never be kept in the dairy, as milk is of such an absorbing character, especially at the high temperature at which it is generally brought in, that it quickly takes up any foul odour.

Churning and Working.—The churning operation is one which should receive every attention of the butter-maker, as the success rests entirely on the process being perfectly carried out. Even if every care is taken in the production of the milk and its manipulation in the dairy, if this process is not conducted correctly, viz., in getting rid of the whole of the caseine fermentation (buttermilk) at the proper time, the skill exercised in the previous work is thrown away.

As before referred to, heat being the greatest enemy to be fought against, too great importance cannot be attached to the temperature for churning, as the difference of a few degrees of temperature in the cream would spoil a whole churning. The temperature to commence with much depends upon the ripeness and quality of cream, and also the temperature of the atmosphere, but the following scale may be adopted :—

Temperature of Atmosphere.	Temperature of Cream.
66° Fahr.	54° Fahr.
64° ,,	55° ,,
62° ,,	56° ,,
60° ,,	58° ,,
58° ,,	58° ,,
56° ,,	60° ,,
54° ,,	61° ,,

Having found many samples of colonial butter of inferior quality, which it is very clear is to some extent due to over-churning of the butter, I give the following chapter on churning from my book on dairying, which has had a wide circulation in most countries :—

"The churning of cream, although a mechanical process, is aided by a chemical action induced by allowing the cream to become ripe or slightly sour, which is easily understood, for, by allowing the sourness to take place, lactic acid is formed, which dissolves the shells of caseine or curd surrounding the globules of butter-fat, as already mentioned. These being removed, the globules are allowed to come together and cohere by the operation of churning.

"The churning should be done with regularity, the speed depending upon the make of churn, commencing slowly, and after the swelling has subsided, which will be in about four to five minutes, increase the speed a little.

"Ventilate the churn frequently by removing the plug for a few seconds, or by pressing down the ventilator, as the case may be, to allow the gases to escape which are caused by the expansion of cream through the agitation. This ventilation must be continued until the air has finished rushing out when the plug is removed, which generally takes place during the first ten minutes. The time varies according to the ripeness of the cream; the more sour the cream is the expansion will be greater, causing more gas. The ventilation should receive every attention, for by not doing so, the expansion has no relief and is one of the causes of 'sleepy' cream, results of which are too well known to describe.

"Listen attentively to the sound of the cream, and immediately it changes in the least degree, stop the churning, remove the lid, and examine the contents.

"If the grains of butter thus formed are no larger than a pin's head the churning is finished, and the butter ready for washing, but if the grains are smaller return the lid and rotate the churn a few times, which will increase the grains to the desired size; not as the greater number of butter-makers do, who believe in churning their butter into lumps, which is the cause of the greater part of the inferior butter made. It stands to reason that if these grains are lumped together in one homogeneous mass they incorporate a certain amount of buttermilk in them, and to get rid of the buttermilk it has to be over-worked, which gives us butter of bad texture and soft. There is a great saying amongst our old dairymaids, 'gather the butter well before drawing out the buttermilk.' This only shows how wrong the action is. If it really must be gathered, let it be done after the washing, when the buttermilk is free from it. If the weather is cool, withdraw the buttermilk; to avoid loss, pass the buttermilk through a hair sieve, which will retain any particle of butter that may escape with the buttermilk, and return it to the churn; but, on the other hand, if the weather is warm, and the grains of butter inclined to be soft, it will be found best to sacrifice part, or even the whole of the buttermilk if necessary, by pouring in cold spring water to cool the grains of butter, and keep them floating. It will be found beneficial in hot weather to add to the grains of butter in the churn when they are just formed one-eighth pure cold spring water, say one gallon to eight gallons of cream, then continue the churning until the grains are enlarged to the required size. When the butter has just formed, the temperature of it should never register above 60° Fahr.; it would be better for it never to be higher than 56°, and then you can rely upon having firm grains—hence good textured butter; otherwise there would be no certainty even if the churning is stopped at the proper time. Too much attention cannot possibly be taken in seeing that the buttermilk is separated from the butter at the proper time, viz., when the butter is in a granular form. The greater part of the bad flavour imparted to butter, either from improper feeding or treatment of stock, or for want of a proper knowledge in the manipulation of the milk and cream, is found in the constituents of buttermilk; this only shows how important it is that every particle of the buttermilk should be excluded from the butter."

Great care must be taken in the working of the butter, in order to secure a perfect mixture, hence a firm butter, which is one of the chief characteristics of "finest" butter.

The object of working butter is to free it from as much water as possible, or any buttermilk which remains in it after washing, to give it a more solid consistency, *without the least injury to the grain or texture. Every movement of the roller of the worker should be a direct pressure, avoiding any rubbing or sliding motion."*

CHEESE-MAKING.

One of the market requirements in the present day is to have cheese of clean flavour and mild, whether it be a "fat," "half-meaty," or "skim" cheese, and it is very surprising to see the many dairies of cheese sold on our several markets at an unprofitable price because they possess a "strong" or "not clean" flavour, when there is a simple way to improve it.

The course to adopt in the manufacture of cheese in accordance with the consumers' taste is to take care that the production and treatment of the milk before it reaches the dairy or factory is carried out as previously described; that the whole of the utensils are kept scrupulously clean; that the milk, before being coagulated or "set," has developed sufficient acidity, and yet is not over-ripe; that the raising or lowering of the temperature is not done too rapidly; that the best rennet alone is used in the coagulation, and that while it is being added the milk is well and yet not over stirred; that the curd, in the first instance, when sufficiently firm, is cut down very gently—this is most important; that the curd is never allowed to drop below 65° to 70° Fahr.; that the salt is weighed in proportion to the quantity of curd, and that the best salt alone is used; that the press-room be kept of uniform temperature, and also the cheese store-room.

Although the manufacture of the several classes of cheese differ somewhat, attention to the features just mentioned will be found most important in all classes of cheese, in order to make an article pleasing to the palate of the consumer as well as remunerative to the producer. As previously mentioned, it will be desirable for the colonists to make cheese in accordance with the different markets' requirements; and, in order to produce good results, it will be most advantageous to adopt the modern apparatus, especially as the highest skill is necessary to combat the high temperature of the colony. Treating more fully on the advice given above, there is no doubt that one of the greatest secrets in producing a "finest" cheese is to see that the milk has developed a certain amount of acidity before the rennet is added. At the same time, great care must be taken that the milk has not developed too much acidity, and it will be found most important, in the case of milk being overheated, to cool it down by aërating it, to take out the animal heat, and then to heat it up again if necessary to develope the requisite acidity. The milk should always be strained before pouring it into the cheese-tub, and throughout the whole of the manipulation the cheese-maker should remember what his first qualification should be—"cleanliness."

The regulating of the temperature of the evening's milk is most essential, and especially in the hot weather. The evening's milk, if not made into cheese, should be cooled so as to reach a temperature from 58° to 62° Fahr. in the morning, and then, when the morning's milk is added, as a rule you may depend upon the acidity not having developed too far.

Of course I do not intend in this report to go fully into the manufacture of cheese, but I merely refer to certain points which should receive every attention considering the high temperature which one has to fight against.

Discretion should be used in adding the rennet with regard to the temperature of the milk at that period. If the temperature is too low, the curd remains too soft, and much difficulty is experienced in separating the whey. If, on the other hand, the temperature is too high, the separation is easily effected, but the curd becomes hard and dry. It is very important that the milk should be well stirred for two or three minutes after adding the rennet, but if the slightest amount of coagulation is noticeable the stirring must be immediately stopped. It should be remembered that the stirring is not only to spread the rennet more uniformly over the milk, but to prevent, if possible, the cream rising.

An inferior curd, and especially the bad flavour of cheese, owes its origin in many cases to the want of proper care in the handling of the milk from which it has been made.

The very greatest care must be exercised in cutting down the curd, and the blade of the knife should be such that there is no fear of the curd being torn by its use, which must necessarily, in bruising the curd, press out the fatty portion. Many cheese-makers on finding the cheese when made not of rich quality, too frequently attach the blame to the poorness of the milk, when it is due only to the careless cutting down of the curd.

It is also worthy of attention that in "cooking the curd" the process should not be carried out too randomly, as, although the cooking when required is such an excellent medium for producing a "finest" cheese, still it must be remembered that the raising of the temperature should be done with very great caution, and, as a rule, I should suggest that 100° is the maximum temperature that can be employed with safety. This temperature is really too high, and should only be admissible when the heat is liable to pass off rapidly, and for the purpose of holding the bulk at 96° or 98°. The term "cooking" is very misleading, and as a rule in cheese-making no process requires a temperature above blood heat.

The temperature of the curd in the cheese tub, until time for salting, should be carefully watched, a matter which will require great discretion on the part of the cheese-maker, for if ever the curd drops to a low degree of temperature it will be impossible to thoroughly get rid of the whey.

Attention to all the points mentioned above is absolutely necessary if the production of the "finest" cheese is aimed at.

THE SALTING OF CHEESE AND BUTTER.

It is beyond doubt that great negligence prevails on the part of many producers of butter and cheese in not seeing that the salt used is pure.

Too frequently is salt purchased without thought — like artificial manure — on account of its apparent cheapness, and with the result that the fine flavour of tons of cheese and butter is affected on account of the salt being impure. Oftentimes is the work of a skilled butter- or cheese-maker thwarted in producing a choice article through the manager or farmer purchasing without discretion, and sacrificing everything to present cheapness, with "penny wise and pound foolish" result.

In order to show how vastly important it is that the purest salt should be used, and as so many producers are unaware of the work it has to perform, I briefly describe its several uses.

Many people are under the impression that if salt is clean-looking to the eye it contains no deleterious ingredients that would affect the flavour of either cheese or butter. Too often are they of the opinion that the difference between the first-rate and the second-rate article is merely in its pulverisation and its general get-up.

The best line for producers to follow will be to make a rule of purchasing salt from reliable firms, and on analysis. As regards cheese, the object of using salt in curds is to arrest putrefactive fermentation, and to check the acidity when it has developed sufficiently to produce the best results. It is also an important agent in varying the taste and keeping qualities of the cheese; and the character and reputation of the cheese will depend, to a great extent, on the careful way in which it is applied. The salt must be used with the greatest discretion, as, by using too little, the cheese will ripen with great rapidity and necessitate early consumption; whereas, on the other hand, if too much is used it certainly cures the cheese, but it hinders the ripening and maturity, and oftentimes makes the cheese hard and stiff.

As regards butter, the chief object is to bring every particle of the caseous ferment, present more or less in all butter, into contact with the salt, and so check its own tendency to decay and its consequent action on the butter itself. A thorough mixture of the salt with the butter is therefore desirable, but in applying it great care must be taken that the texture or grain of the butter is not injured in the least. The amount of salt to be used must depend upon the taste of the consumer and the district to which it is consigned, but it must always be weighed in proportion to the quantity of the butter. Any of the old ideas of "rule of thumb" must be abandoned.

In the case of fresh butter, the use of a standard solution of brine, poured on the butter when in a granular condition in the churn, is an admirable method of insuring uniform admixture, and, in addition, this plan, especially advantageous in the absence of cold water, solidifies the butter, making it easier to deal with when working.

The constituents to salt, which affect the quality of butter and cheese, are the chlorides of calcium and magnesium. A satisfactory guide to the purity of salt is its dryness, as the chlorides cause the salt to absorb and retain the moisture, and it should be of a pure white colour, free from odour and possess a pungent taste.

As an example of good dairy salt, I give two analyses of samples received from a noted firm:—

Sodic chloride	98·17
Calcic sulphate	1·76
Magnesic chloride	0·05
Insoluble matter, &c.	0·02
	100·00

Moisture	0·5
Sodium chloride	98·1
Calcium sulphate	1·2
Magnesium salts	0·2
Phosphate and silica	None
	100·0

PACKAGES.

The general make-up of butter and cheese depends upon the custom of the market to which it is consigned, local tastes having to be considered.

Whatever form is adopted, it must be of attractive neatness, which well repays the trouble of the packer.

With regard to butter, the present style of packages of colonial butter, viz., the cube boxes, has now become well known and popular, and is no doubt a special feature of the trade, but, considering the fame won by the continential trade with casks or firkins, the colonies must consider the importance of adopting them if required by the trade in the several markets.

Of course fine quality will always sell, but much depends upon the general appearance of the packages.

The adoption of any other package to those at present in use will, of course, be a matter of consideration; at the same time, now the treatment on board ship has so much improved, there is no reason why lighter packages in the several forms should not be adopted to suit the different markets, if necessary.

The great advantages of the present packages are the cheapness of manufacture, the saving in shipping-space, and the suitable shape for the counter, which greatly simplifies the work of the retailer.

The packages should be of uniform size and of uniform weight (net), and few nails should be used in fixing the lids. So doing facilitates opening, and also preserves the lids: it insures quick replacement of a new sample before the customer, if the first is not approved of, and also insures the box being intact; it removes the prejudice of it appearing a "rejected" article. All packages should be lined with stout vegetable parchment paper, and yet not too stiff, and this should be purchased from a reliable firm in order to insure its being properly manufactured. It will be found beneficial, in insuring a good "turn-out" of the butter, if a double thickness of the paper is used, and this system, I am pleased to note, is carried out by a few firms with success.

With regard to cheese, the sexagon or octagon-shaped crates usually adopted answer very well, and certainly have the advantage of allowing of ample ventilation, but care must be taken that the cheeses contained in each crate are of uniform quality. Although there is no doubt that if the producers exercise every care in the making of a fine quality cheese, the patent crates will soon win a reputation for themselves, and will be exemplified as "Colonial Cheese," yet in order to meet the wants of the different markets it may be deemed necessary to adopt the American and Canadian boxes.

There are (September, 1895) in this colony 73 cheese factories, 78 butter factories, and 83 creameries. To supply these, about 70,720 cows are milked. The approximate yearly output of cheese is 10,365,453lb., value £172,743, and of butter 8,084,298lb., value £269,424. These factories employ 488 men.

NEW ZEALAND FORESTS AND THE TIMBER INDUSTRY.

By Professor T. Kirk, F.L.S.

If the relative importance of the various branches of colonial industry be determined by the value of the output of each, the timber industry occupies the fourth place; but, if it be based on the amount of remunerative employment afforded by each, this industry occupies nearly the first place. The number of saw-mills in working-order at the date of the last census (1891*) was: In the North Island, 119, employing 1,996 persons; and in the Middle Island, 124, affording employment to 1,270 persons—a total of 243 mills, requiring the services of 3,266 persons. But this number does not nearly represent the amount of labour employed, as many men engaged in the preliminary work of felling, logging, hauling, building dams, laying tramways, &c., are returned as "bushmen," "contractors," "drivers," &c., without anything to show that they are directly connected with saw-mill work. If these be added, the number of persons employed will certainly not be less than 5,000. Further, in some districts large quantities of sawn or hewn logs are conveyed to the mills by rail or by coasting-craft; while, in all alike, round or sawn timber constitutes one of the largest items of railway-freight, and in this way gives employment to many more.

General Character of the Forest.

The character of the forest varies greatly in different localities, according to the kind of trees composing it and the degree of luxuriance which they attain. New Zealand forests are usually of a mixed character, some one or two kinds predominating to a greater or less extent. It is but rarely that large areas of forest consist of a single species only; but there are noteworthy exceptions—thus, the mountain forests consist of mountain-beech exclusively; the Oxford and Alford Forests of entire-leaved beech; some large areas are altogether covered with tawa; kahikatea forms uniform forests in swampy districts, and smaller areas are occasionally found containing nothing but kauri. Still, the great bulk of the forest is of a mixed character. This renders it difficult to lay down well-defined areas for the principal timbers, more especially as most of the trees are generally distributed through the colony. Nevertheless, certain districts may be roughly defined according to the prevailing tree or trees, although the boundaries must of necessity be somewhat vague.

(1.) *The Kauri District.*

This may be defined as that part of the colony lying north of a line drawn from Tauranga to Port Waikato, the kauri being the predominating tree over large portions of the area. In some parts only single trees are found, in others they occur in clumps or groups, sometimes forming extensive groves, or even large blocks, almost to the exclusion of all other trees. Most frequently the kauri will be found mixed with rimu, kahikatea, tanekaha, miro, totara, totara-kiri-kotukutuku, northern rata, puriri, tawa, tarairi, matai, and many other trees, the tawa, as a rule, being most abundant. The nikau, or southern palm, is plentiful all through the district, and is everywhere accompanied by noble tree-ferns and palm-lilies. The underwood is composed of numerous shrubs, and the ground is carpeted with a rich growth of delicate filmy ferns. A large kauri forest is one of the grandest sights to be found in the entire range of the vegetable kingdom; massive columnar trunks, 4ft. to 8ft. in diameter, clothed with smooth grey bark, rise close together often to the height of a hundred feet or more, their spreading arms and deep green leaves presenting a picture of the greatest luxuriance and vigour. At the base of each tree is a large mound of humus, formed by the decay of bark through successive centuries. The surface-soil as well as the humus is charged with resin that has exuded from the fallen leaves or twigs. Some of the most ancient specimens are among the oldest trees in the world, and must have originated in a period long before the Christian era, yet they still exhibit all the life and exuberance of early youth.

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* A year of intense depression; many mills were entirely closed, and others worked only half-time, or even less.

In the extensive swamps by the Northern Wairoa and other rivers, the kahikatea forms forests of a remarkable character. The uniformly straight naked trunks often exceed a hundred feet in height, carry very short branches at their tops, and are so close together that at the distance of a few yards the view is completely blocked, and nothing is to be seen but the column-like trunks from 2ft. to 5ft. in diameter; the undergrowth being insignificant.

(2.) *The Totara District.*

Although the totara is distributed throughout the colony, it occurs in larger masses in the central portions of the North Island, more especially on the eastern side. Large areas, in which it is the prevailing tree, are found in many parts south of the Lower Waikato, more especially in the southern parts of Hawke's Bay, the northern portion of the Wellington District, and the Seventy-Mile Bush. In a large portion of the area the totara is sparsely scattered, and even when most dense is usually intermixed with rimu, tawa, totara-kiri-kotukutuku, kamahi, hinau, kahikatea and other trees. Unlike the kauri the bark of the totara is of a deep brown colour and much furrowed, while the short narrow leaves are of a brownish green. Amongst the most conspicuous trees of this area there are two worthy of special mention, the northern rata and the black maire, which occur in vast abundance in many localities. The former is often found with a distorted trunk of gigantic dimensions clothed with rough brown bark. The latter has a pale bark and yields a timber remarkable alike for its density, strength, and durability. Large portions of the forest, especially on the western side, consist chiefly of tawa, rimu, and kahikatea, which are extensively converted throughout the district, the first-named for dairyware and butter-kegs, the two latter for building and general purposes. Tooth-leaved beech, entire-leaved beech, and silver-beech are plentiful on the lower slopes of the mountains, but rarely descend to the sea-level, while mountain beech forms the bulk of the forest at high levels. Rimu and kahikatea are the chief timbers of the moist forests in the valleys of the Manawatu, Rangitikei, and Wairarapa.

(3.) *The Red-pine District.*

This might be termed the low-land pine district of the Middle Island, as practically it comprises all the forest country in that island below a level of 1,000ft. Although in nearly all localities the forest is of a mixed character, yet from Marlborough to Stewart Island the rimu must be considered the predominating tree, and is the most extensively converted. The kahikatea stands next in abundance, and is closely approached by the kamahi, while the miro, matai, totara, Hall's totara, are generally distributed ; but the northern rata and pukatea scarcely occur south of Greymouth. The Westland silver-pine, yellow silver-pine, and quintinia, although not peculiar to Westland, are more abundant there than in any other part of the colony ; while the southern rata, which extends to Stewart Island, is especially plentiful in the Tautuku Forest, where it attains very large dimensions. Cedar or pahautea, pokaka, and hinau are not unfrequent, while most of the beeches are plentiful, especially in the southern parts of the district. The undergrowth contains a large variety of shrubs or small trees, many of which afford timbers suitable for ornamental cabinet-work and inlaying.

Much of the rimu and kahikatea in the south-western portion of the Nelson District, and in Westland, is of great height, and very well-grown, in some cases yielding 80,000 superficial feet of converted timber per acre.

The area of heavy forest on the eastern side of the Middle Island is small ; the inland Oxford and Alford Forests consisting chiefly of entire-leaved beech.

(4.) *The Beech District.*

This may be roughly defined as that portion of the Middle Island between 1,000ft. and 4,000ft. in altitude, for, although the rimu and kahikatea are often found above 1,000ft., yet they rarely occur in any great quantity, or exhibit great luxuriance ; so, on the other hand, the different beeches occasionally descend even to the sea-level, although rarely forming any large portion of the forest at extremely low levels. The most valuable forest-tree is the tooth-leaved beech, which attains exceptional luxuriance and large dimensions in the neighbourhood of Te Anau Lake, and many other localities. Silver-beech and entire-leaved-beech are found as far south as Preservation Inlet and the Tautuku Forest, while the mountain-beech prefers higher levels, although occasionally a few specimens descend to the rimu district. None of the beeches extend to Stewart Island, which in many parts is covered with a dense growth of rimu, kamahi, and rata, the kahikatea being extremely rare.

AREA OF FOREST LAND.

The following statement of the approximate areas still under forest was published in the report of the Survey Department for the year ending 31st March, 1893:—

	Acres.
Auckland Land District—	
North of Auckland	1,800,000
South "	3,420,000
Taranaki	1,850,000
Hawke's Bay	1,900,000
Wellington	3,400,000
Marlborough	400,000
Nelson	3,240,000
Westland	2,394,000
Canterbury	492,000
Otago	1,182,000
Southland	500,000
	20,578,000

The State forest reserves, including those made for climatic purposes, comprised 1,141,778 acres on 31st March, 1895.

EXPLOITATION AND CONVERSION.

The trees are felled and cross-cut into suitable lengths for conversion, the logs being conveyed to the mill by flotation, by tramline, or, more rarely, hauled by oxen or horses.

Flotation is the method most commonly used in the kauri districts, which are much broken by deep gullies and small streams, opening into tidal creeks. After the trunks are cut into lengths a "rolling-road" is formed to the nearest creek. All the scrub is closely cut down for a width of from twenty-five to thirty feet, and all stumps are removed, while inequalities are reduced so as to obtain an approximately even surface, inclined towards the creek. The logs are forced along this road by timber-jacks, which the bushmen use with remarkable skill, and are impelled with a rapidity which is simply astonishing to persons unused to the process. If the creek contains plenty of water the logs float to the nearest booms without further trouble, and are drawn out of the water as required, but in many cases the creek does not contain sufficient water to float the logs, and then they are left until heavy rains afford the requisite depth. Often it is necessary to construct costly dams to impound the water in the upper parts of the creek, in order that it may be suddenly liberated when the water in the lower parts is at its greatest depth, so that the entire assemblage of logs may be "driven" to the booms. In dry seasons the logs may remain in the bed of the creek for months, and, occasionally, after a successful " drive," the harvest of logs is carried out to sea and lost, the booms breaking from the immense pressure behind them. Kauri-logs, thus set free, often drift to the coast of the Kermadec Islands, nearly seven hundred miles north-east of the Hauraki Gulf. Tram-lines are less common in the kauri district than in the southern parts of the colony.

In portions of the Taranaki District, where milling timber is somewhat sparse, timber-wheels are commonly used; but in nearly all places where milling timber is plentiful a tramway is constructed. Kamahi, or other common timbers are used for sleepers. Rails are sawn out of better stuff, and laid in notches cut in the sleepers, being tightly fixed by wooden wedges. Haulage is usually effected by horse-power, but in some cases the tramway is built in a more substantial manner, light steel rails being used instead of wood, and the logs are hauled by a steam motor. The maximum proportion of tramway required is half a chain per acre. Loading places are constructed alongside the line, at a distance of twenty or thirty chains apart, to which the logs are hauled by oxen. If of large size, the timber-jack is employed to facilitate loading. It is not considered profitable to haul logs from a greater distance than ten chains on either side of the tramway. It is in the Southland forests, where there is a large extent of comparatively level land, that the tramway is most used.

The sawmill is usually worked by steam power, rarely by water, and may vary from the magnificent mills of the Auckland District to the small portable engine and movable saw-bench commonly seen in a block newly opened for settlement. For their completeness, and the quality of their machinery, the Auckland mills are equal to any in the world. They are fitted with vertical breaking-down saws, capable of dividing the largest logs into halves or flitches, as may be required; vertical frame-saws for converting the flitches into boards, and circular saw-benches having rack adjustments for the conversion of scantling. Planing machines of the best pattern, tonguing and grooving machinery, moulding machines, as well as machines for the manufacture of doors and sashes, coopers' staves, gates, wheelwrights' stuff, &c., &c., are to be seen on all sides. Some of the mills are furnished with the electric light, so as to allow of work being carried on through the night when required, and in a few cases arrangements are made for seasoning converted timber by the hot air process. In the totara and rimu districts the mills are less complex, of smaller extent, and driven by less powerful engines. Breaking-down is commonly effected by the circular saw, and in the case of very large logs by two circular saws, an upper and a lower working in the same vertical plane. Vertical frame-saws can scarcely be said to have been brought into general use, although they are becoming more common. A circular-saw bench, with rack adjustment, serves for the conversion of boards and scantling. Planing is effected by a simple machine with revoving cutters. Machines for tonguing and grooving and for moulding are to be found in nearly every mill, the former usually combined with the planing-machine. Planing-machines of a better type are coming into use, and, at one or two of the Hokitika mills, wide boards and panels, suitable for ornamental cabinet-work, are turned out by frame-saws in a style that could not be surpassed either in England or the United States.

Output and Labour.

The value of the total output of sawn timber, planed flooring and skirting, mouldings, doors, and sashes, for the entire colony during the year 1890, was stated by the Registrar-General to be £832,959. Owing to the severe depression experienced during that year, this amount is no less than £344,754 below that of the previous census, 1886. At the census of 1891, twenty-five mills had been closed, and the number of persons employed had fallen from 5,042 to 3,266, many of the mills working even less than half-time. Since that date, the trade has greatly improved, and its volume is largely increased. Of the total output for 1890 the forty-seven Auckland mills contributed more than one-half, the value of their output being £416,978, while the manufactures of the 196 mills in the other provincial districts were valued at only £415,981. The sum paid in wages during the same year is stated at £271,783; but this includes only a portion of the amount paid to the bushmen, fellers, and others engaged in preparing the logs for conversion, as many mills purchase logs from settlers, or employ contractors, who deliver the logs at the mill at fixed rates.

The approximate value of land, buildings, machinery, and plant was returned as under: Land, £160,750; buildings, £92,848; machinery and plant, £246,674: total, £500,272.

In the kauri district, bush-hands are commonly paid 20s., or rarely 18s. per week, with board and lodgings, the accommodation in some cases being plain, but amply sufficient in so mild a climate, the board plentiful and of good quality. In some instances, married bush-hands put up a rough cottage, the larger part of the material being supplied by the manager free of cost, and sometimes enclose a small garden; in this case, saving the cost of rent and firing, while securing a large amount of comfort at a minimum of expenditure. On the other hand, the cost of flour and other provisions is somewhat higher than in the towns, on account of the heavy charges for freight.

At page 49 of the Report of the Labour Department (H.–10, 1893), it is stated that a sawmill hand returned his average yearly earnings, after allowing for lost time, at £115. A bushman, under the same conditions, returned his earnings at £92 8s. As a general rule, wages for adults are a little higher in Westland than in any other district on account of the higher cost of living. On the other hand, they are slightly lower in the Auckland District, where compensation is found in the greatly-reduced cost of living. In Southland, at this date (May, 1895) benchmen are paid at the rate of 9s. per day, or £12 per month when in work; ordinary mill-hands, 6s. 6d. to 8s.; planing-machine men and bushmen, 7s. to 8s. per day; engine-drivers, 7s. to 8s.; bullock-drivers, 7s. to 8s.

TIMBER EXPORT.

The following table shows the gradual development of the export trade, and its present position:—

Year.	Sawn and Hewn Timber.	
	Quantity. Ft.	Value. £
1871	3,214,742	14,200
1875	5,225,627	26,914
1881	13,180,280	65,119
1888	43,474,434	177,877
1889	42,568,600	176,608
1890	42,098,863	181,689
1891	42,824,365	182,431
1892	22,860,551	87,581
1893	26,718,046	101,082
1894	31,901,415	116,116

By far the greater portion of exported timber consists of kauri, the proportion of other timbers being almost insignificant; thus, in 1887 the quantity of kauri exported was 30,230,084 superficial feet, valued at £124,347; all other timbers, 1,404,380 superficial feet, valued at £4,475. The export of rimu and kahikatea is, however, increasing, although not very rapidly; up till now the greater part has been shipped from the Bluff, but the recent completion of the Hokitika and Greymouth Railway will lead to considerable shipments being made from the latter port. Figured rimu, which is plentiful in the Westland forests, could be placed on the London market at a low price, either as selected board or as logs, and would command a ready sale if arrangements could be made for shipments at regular intervals.

The remarkable falling-off in the export of 1892 was caused by the terrible commercial depression experienced throughout the Australian colonies as well as in New Zealand. The returns for 1893 and 1894 show that a marked improvement has since then taken place.

VARIETIES OF TIMBER TREES.

The chief timbers and timber-trees of New Zealand may fairly be divided into three classes:—

I.—*Timbers of Great Durability and Large Dimensions, suitable for Constructive Works, House-building, or for Special Purposes.*

1. Kauri (*Agathis australis*), Salisbury.
2. Totara (*Podocarpus totara*), A. Cunningham.
3. Totara-kiri-kotukutuku (*Podocarpus hallii*), T. Kirk.
4. Matai (*Podocarpus spicata*), R. Brown.
5. Kawaka (*Libocedrus doniana*), Endlicher.
6. Pahautea, or cedar (*Libocedrus bidwillii*), Hooker f.
7. Northern manoao (*Dacrydium kirkii*), F. Mueller.
8. Southern manoao (*Dacrydium colensoi*), Hooker.
9. Westland pine (*Dacrydium westlandicum*), T. Kirk.

10. Yellow silver-pine (*Dacrydium intermedium*), T. Kirk.
11. Puriri (*Vitex littoralis*), A. Cunningham.
12. Tawhai raunui, tooth-leaved beech (*Fagus fusca*), Hooker f.
13. Tawhai rauriki, entire-leaved beech (*Fagus solandri*), Hooker f.
14. Tawhai, Blair's beech (*Fagus blairii*), T. Kirk.
15. Maire raunui (*Olea cunninghamii*), Hooker f.
16. Maire (*Olea lanceolata*), Hooker f.
17. Narrow-leaved maire (*Olea montana*), Hooker f.
18. The northern rata (*Metrosideros robusta*), A. Cunningham.
19. The southern rata (*Metrosideros lucida*), Menzies.
20. Pohutukawa (*Metrosideros tomentosa*), A. Cunningham.
[*]21. Small-leaved pohutukawa (*Metrosideros polymorpha*), Forster.
22. Manuka rauriki (*Leptospermum ericoides*), A. Richard.
23. Maire tawhake (*Eugenia maire*), A. Cunningham.
24. Kowhai (*Sophora tetraptera*), Aiton.

II.—*Timbers suitable for General Building Purposes, or for Special Uses, but of less Durability than the preceding kinds.*

25. Rimu, red-pine (*Dacrydium cupressinum*), Solander.
26. Kahikatea, white-pine (*Podocarpus dacrydioides*), A. Richard.
27. Miro toromiro (*Podocarpus ferruginea*), Don.
28. Tanekaha (*Phyllocladus trichomanoides*), Don.
29. Toatoa (*Phyllocladus glauca*), Carr.
30. Mountain toatoa (*Phyllocladus alpinus*), Hooker f.
31. Tawhai rauriki, mountain beech (*Fagus cliffortioides*), Hooker f.
32. Tawhai, silver-beech (*Fagus menziesii*), Hooker f.
33. Pukatea (*Laurelia novæ-zelandiæ*), A. Cunningham.
34. Hinau (*Elæocarpus dentatus*), Vahl.
35. Pokaka (*Elæocarpus hookerianus*), Raoul.
36. Tarairi (*Beilschmiedia tarairi*), Bentham and Hooker f.
37. Tawa (*Beilschmiedia tawa*), Bentham and Hooker f.
38. Titoki, tokitoki (*Alectryon excelsum*), De Candolle.
39. Tawari (*Ixerba brexioides*), A. Cunningham.
40. Mangeao, tangeao (*Litsea calicaris*), Bentham and Hooker f.
41. Rewarewa (*Knightia excelsa*), R. Brown.
42. Tawhero (*Weinmannia silvicola*), Banks and Solander.
43. Towhai, or kamahi (*Weinmannia racemosa*), Forster.
44. Porokaiwhiri (*Hedycarya dentata*), Forster.
45. Kohekohe (*Dysoxylum spectabile*), Hooker f.

III.—*Timbers of Small Dimensions, adapted to Special Purposes.*

46. Horopito (*Drimys axillaris*), Forster.
47. Tarata (*Pittosporum eugenioides*), A. Cunningham.
48. Karo (*Pittosporum crassifolium*), Banks and Solander.
49. Tawhiwhi (*Pittosporum tenuifolium*), Banks and Solander.
50. Mahoe (*Melicytus ramiflorus*), Forster.
51. Huoi, or manatu (*Plagianthus betulinus*), A Cunningham.
52. Wharangi (*Melicope ternata*), Forster.
53. Kaikomako (*Pennantia corymbosa*), Forster.
54. Ake (*Dodonæa viscosa*), Linné.
55. Karaka (*Corynocarpus laevigata*), Forster.
56. Putaputa-weta (*Carpodetus serratus*), Forster.
57. Kumarahou (*Quintina serrata*), A. Cunningham.
58. Makamaka (*Ackama rosæfolia*), A. Cunningham.
59. Manuka, or kahikatoa (*Leptospermum scoparium*), Forster.
60. Ramarama (*Myrtus bullata*), Banks and Solander.
61. Small-leaved Ramarama (*Myrtus ralphii*), Hooker f.
62. Rohutu (*Myrtus obcordata*), Hooker f.

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[*] Found only in the Kermadecs.

63. Rohutu (*Myrtus pedunculata*), Hooker f.
64. Kotukutuku, or kohutuhutu (*Fuschsia excorticata*), Linné.
65. Horoeka, lancewood (*Pseudopanax crassifolium*), Seeman.
66. Toothed lancewood (*Pseudopanax ferox*), T. Kirk.
67. Papauma (*Griselinia littoralis*), Raoul.
68. Puka (*Griselinia lucida*), Foster.
69. Tree karamu (*Coprosma arborea*), T. Kirk.
70. Yellow-wood (*Coprosma linariifolia*), Hooker f.
71. Tupari (*Olearia colensoi*), Hooker f.
72. Akeake (*Olearia traversii*), Hooker f.
73. Heketara (*Olearia cunninghamii*), Hooker f.
74. Akeake (*Olearia avicinniæfolia*), Hooker f.
75. Neinei (*Dracophyllum latifolium*), Hooker f.
76. Mountain neinei (*Dracophyllum traversii*), Hooker f.
77. Inaka (*Dracophyllum longifolium*), R. Brown.
78. Toro (*Myrsine salicina*), Heward.
79. Mapau (*Myrsine australis*), A. de Candolle.
80. Tawaapou (*Sideroxylon costatum*), Bentham and Hooker f.
81. Maire (*Fusanus cunninghamii*), Bentham and Hooker f.
82. Ngaio (*Myoporum lætum*), Banks and Solander.
83. Toru (*Persoonia toro*), A. Cunningham.
84. Milk-tree (*Paratrophis microphyllus*), Bentham and Hooker f.
85. Makomako (*Aristotelia racemosa*), Hooker f.
86. Tumatukuru (*Discaria toumatou*), Raoul.

A brief description of each of the above species will be found below. The weight per cubic foot, unless otherwise specified, is invariably for *seasoned* timber :—

Class I.

1. KAURI (*Agathis australis*), Salisbury; "Forest Flora of New Zealand," Plates 79 to 81. North Cape to Maketu and Kawhia.

This is the finest tree in New Zealand, and affords the most valuable timber. It varies from 80ft. to 100ft. and upwards in height, with a trunk from 3ft. to 8ft. in diameter; but specimens have been measured with a diameter of fully 22ft.

The bark is smooth, of a dark-grey colour, and falls away in large flat flakes. The leaves are rather close-set, very thick and rigid, 1in. to 3in. long; and the handsome globular cone is nearly 3in. in diameter.

The timber is of the highest value, and combines a larger number of good qualities in a high degree of perfection than any other pine timber in general use; for, while of great strength, it is of high durability, and unites a firm, compact texture with great silkiness, so that it is worked quite as easily as the best Quebec yellow pine.

Many logs are beautifully clouded, feathered, or mottled, and are highly valued for ornamental cabinet-work, panelling, &c., realising from £7 to £10 per 100ft. superficial. Ordinary wood without figure is used for wharves, bridges, and constructive works generally; squared piles, railway sleepers, ship-building (especially for deck planking), house-building, fencing, and other purposes too numerous to mention.

It is exported to a greater extent than any other New Zealand timber, and affords employment to nearly one-third of the entire number of persons engaged in timber conversion. Its turpentine constitutes the valuable resin known as kauri-gum, in gathering which nearly 7,000 persons are employed.

Its specific gravity varies from 0·498 to 0·700. Its relative strength when compared with English oak is as 892 to 1,000; weight per cubic foot when seasoned, 37·11lb. to 42lb. The mean average breaking-weight obtained from twelve specimens is 165·5lb.

2. **Totara** (*Podocarpus totara*), A. Cunningham; "Forest Flora," Plate 115. Mongonui to Southland.

The totara stands next to the kauri for general utility, and, being more widely distributed, is by some considered of equal, or even greater, value; but, though equalling kauri in durability and the facility with which it can be worked, it is inferior in strength, and will not take so high a finish. The tree is usually from 60ft. to 80ft. in height, the trunk having a diameter of from 2ft. to 6ft., but specimens 100ft. high, with a diameter of 8ft., are not infrequent. The trunk is clothed with fibrous brown bark, which is deeply furrowed, and in very old specimens is fully 3in. thick. The leaves are about ¾in. long, linear, and of a greenish-brown tint. The wood is of a reddish-brown colour, and does not warp or twist. It is clear and straight in the grain, and, therefore, easily worked. It is of extreme durability, and is largely employed for building purposes, bridges, wharves, telegraph-posts, railway-sleepers, house-blocks, fencing-posts, and various other purposes. Owing to its unrivalled power of resisting the attacks of the teredo, it is highly valued for marine piles, and is unquestionably the best timber in the colony for that purpose. Many of the large canoes of the Maoris were hewn out of a single trunk.

A well-grown totara forest has an imposing effect: majestic trunks, 60ft. or 80ft. to the first branch, tapering with the greatest regularity, grow so close together that very little top is developed; and the yield of first-class timber is enormous, sometimes amounting to 80,000 or even 100,000 superficial feet per acre. Usually, however, the trees are of smaller dimensions, and the trunks are often distorted, and cannot be converted without a large proportion of waste.

The specific gravity of totara is 55·9; weight per cubic foot when seasoned, 35·17lb.; breaking-weight, 133·6lb., the mean average of seventeen specimens.

3. **Totara-kiri-kotukutuku** (*Podocarpus hallii*), T. Kirk; "Forest Flora," Plates 9, 9a. Mongonui to Stewart Island.

This fine tree bears a close resemblance to the preceding species, *P. totara*, but is distinguished by the larger leaves, which are from ¾in. to 1½in. long, and especially by the thin bark, from which its native name, Totara-kiri-kotukutuku, or fuchsia-barked totara, is derived. It also differs in the male catkins being carried on short stalks, and in the fruits being pointed at the apex, while in the true totara the male flowers are destitute of flower-stalks and the fruits are rounded at the apex. The wood resembles that of the true totara, but is not of equal value for marine piles; it is, however, used for all purposes for which the true totara is employed. The Maoris of Stewart Island employ the thin bark for packing mutton-birds, which form a valuable article for exchange with the northern tribes.

4. **Matai** (*Podocarpus spicata*), R. Brown; "Forest Flora," Plates 4, 5. Mongonui to Otago.

The matai, or black-pine, as it is often called by settlers, is a round-headed tree with erect branches, rarely exceeding 60ft. in height, with a trunk 2ft. to 3ft. in diameter, although larger specimens are occasionally met with. The leaves are close-set, about ½in. in length, of a bright green above, but whitish beneath. The fruits are spherical, less than ½in. in diameter, of a bright-red colour, and arranged in terminal spikes. In the young plant the branchlets are extremely slender and pendulous, with larger leaves, which are of a deep-bronze colour. The aspect differs so widely from that of the mature plant that its identity is usually denied by superficial observers. Its rate of growth is extremely slow. The timber is of a red or yellowish-brown tint; it is straight in the grain, firm, dense, heavy, of great strength and durability, while it is easily worked. It is largely employed for bridges and constructive works, house-blocks, framing, joists, weatherboards, railway-sleepers, piles, millwrights' work, bed-plates, &c., and is especially valued for the flooring of churches and other public buildings, although, on account of its hardness, it cannot be laid so quickly as other kinds. Its specific gravity varies from 0·572 to 0·792; its weight per cubic foot, when seasoned, from 46·862lb. to 47·508lb; and its breaking-weight is 384·03lb. for a piece 2ft. long and 1in. by 1in. supported at each end and loaded in the centre.

5. KAWAKA (*Libocedrus doniana*), Endlicher; "Forest Flora," Plate 82. Hilly parts of the North Island—Mongonui to Taranaki.

This is also termed kaikawaka by the Maoris, but unhappily this name has been commonly applied by surveyors and bushmen to the next mentioned species. It is known to many settlers as the New Zealand *arbor vitæ*. It is a noble tree of conical outline, sometimes 100ft. high, with a trunk from 2ft. to 5ft. in diameter; and, like the next species, may be distinguished from other New Zealand pines by the old bark falling away in long thin ribbons, which are pendent from the trunk along its entire length. The branchlets are much flattened and clothed with imbricating scale-like leaves. The fruit is a small cone, consisting of four woody scales, each with a short spine on the outside; each seed is furnished with a membranous wing. The wood is of a dark-red colour with darker streaks; it is straight and even in the grain, and often very ornamental. It is extremely durable, somewhat stronger than the next species, and has been used for general building purposes, fencing-posts, shingles, palings, &c.; but is especially valued by cabinetmakers on account of its ornamental character and the facility with which it takes a high finish. It is one of the rarest timbers, and has become much too valuable to be used for general purposes.

6. PAHAUTEA, or CEDAR (*Libocedrus bidwillii*), Hooker f.; "Forest Flora," Plate 83. From the head of the Hauraki Gulf to Southland, chiefly in hilly districts.

The pahautea is closely related to the kawaka, but is usually of smaller size, and the ultimate branchlets instead of being flattened are four-sided. It forms an elegant cone-shaped tree 40ft. to 70ft. high, with a trunk from 1ft. to 2½ft. in diameter, although larger specimens are occasionally found. The bark is loose and pendent, as in the preceding species, but the flakes are not so broad and are rather more fibrous. The leaves are similar to those of the kawaka, and the cones are rather smaller, each bearing two winged seeds. The wood is remarkably straight in the grain, but light and rather brittle: it is of a uniform dull red colour, extremely durable in all kinds of situations. It is largely used for general house building, fencing, house-blocks, telegraph-posts, railway-sleepers, bridges, and other purposes for which great durability is required. In this quality it appears to surpass totara. On account of its brittle character it should not be used for beams, flooring joists, or other purposes for which great strength is required. It is excellent for venetian blinds, and stands much better than the imported redwood of California. When seasoned its weight per cubic foot is 26·306lb. to 28·611lb. Its breaking weight is only 99·98lb.; it is therefore the weakest of all the New Zealand pines.

7. NORTHERN MANOAO (*Dacrydium kirkii*), F. Mueller; "Forest Flora," Plate 97. Hokianga, Bay of Islands, north of the Auckland Isthmus.

The manoao of the North Island is a handsome pyramidal or conical tree, 40ft. to 100ft. in height, with a trunk 2ft. to 3ft. or rarely 4ft. in diameter. It is remarkable for exhibiting leaves of two widely different kinds; in the young state the leaves resemble those of the true silver fir, and are from 1in. to 1¼in. long, spreading and acute; these pass most abruptly into imbricating scale-like leaves, so closely appressed that the branchlets resemble stout whipcord. The male and female flowers are carried on different plants, and the fruits, which are set in a small fleshy orange-coloured cup, are aggregated near the tips of the branchlets.

The wood is of a yellowish-brown colour, very compact, elastic, of great strength and extreme durability. Unfortunately it is scarcely known in commerce, although some years back it was placed on the Auckland market under the name of "Barrier pine."

8. SOUTHERN MANOAO (*Dacrydium colensoi*), Hooker; "Forest Flora," Plate 96. Ruapehu to Stewart Island.

The southern manoao has a close resemblance to *D. kirkii*, but is usually of smaller dimensions. The linear leaves are about ½in. long and the appressed scale-like leaves are keeled on the back. The wood is similar in quality to *D. kirkii*, but of a deeper colour. It ascends the mountains to nearly 4,000ft., but is often reduced to a dwarf shrub.

9. **WESTLAND PINES** (*Dacrydium westlandicum*). T. Kirk; "Forest Flora," Plate 85. Whangaroa North, Great Barrier Island, and Ngauruhoe district; the west coast of South Island, and Martin's Bay.

This is often called "silver-pine," or "white silver-pine" to distinguish it from the next species, which is known as "yellow silver-pine." It forms a small tree, usually from 40ft. to 50ft. high, with a trunk 1ft. to 2½ft. in diameter, and rather short branches, which are thickly covered with an immense number of very short slender branchlets. In the young state the leaves are about ¼in. long, awl-shaped and spreading; in the mature state they resemble minute scales closely imbricated all round the stem, so that the branchlets resemble fine whipcord.

Although of small dimensions, its timber is of great value, as it is of extreme durability, combined with great strength, toughness, and elasticity. It is clear in the grain, dense, firm, and compact, charged with resin, and of low specific gravity. When seasoned it has a yellowish satiny lustre, and takes a high finish. It shrinks but little in drying. It has been employed for piles, bridges, wharves, and other constructive works; for marine piles it is fully equal to totara. It has been much used for furniture, and from the unusual combination of great strength and toughness, with extreme durability, is admirably suited for the woodwork of agricultural implements, &c. Recently it has been largely converted for railway-sleepers.

10. **YELLOW SILVER-PINE** (*Dacrydium intermedium*), T. Kirk; "Forest Flora," Plate 86. Great Barrier Island, Thames Goldfield, and central parts of the North Island; west coast of Nelson, Westland, and Otago; Stewart Island

This species is also called the "mountain pine," as it ascends the mountains to 4,000ft. Usually it is a handsome conical or round-headed tree, 40ft. high and upwards, with a trunk 1ft. to 2ft. in diameter. Old specimens growing in open situations are very beautiful, as the branchlets are pendulous and easily swayed by the wind. In the young state the leaves are narrow, awl-shaped, and spreading, ¼in. to ⅜in. long; but in the mature state they are reduced to imbricating scale-like processes $\frac{1}{20}$in. long, with a slight ridge on the back. The wood is very resinous, reddish-yellow, straight-grained, compact and even, combining great strength with extreme durability.

It is applied to the same purposes as the preceding species, and is especially valued for boat-building. It is now used for railway-sleepers, and might also be employed in the manufacture of agricultural implements. It is considered to excel the white silver-pine in durability; if its dimensions were larger it would be one of the most valuable timbers in the colony.

11. **PURIRI** (*Vitex littoralis*), "Forest Flora," Plate 105. North Cape to Poverty Bay and Taranaki.

The puriri is often called the New Zealand oak, on account of its great strength. It is, however, more closely allied to teak. It forms a handsome tree from 40ft. to 60ft. high, with a trunk 2ft. to 5ft. in diameter. The tree is smooth in all its parts, and the bark is thin and almost white. The leaves are of a deep, glossy green, consisting of from three to five stalked leaflets 2in. to 5in. long, springing from the apex of a stout stalk. The leaflets are about 3in. wide. The flowers are red or (rarely) white, forming panicles which spring from the axils of the leaves. They are of irregular shape and about 1in. long. The fruits are spherical, red, and enclose a curious club-shaped nut containing four seeds. The wood is excessively hard, dense, heavy, and is the strongest as well as the most durable timber in the colony. It is of a dark-brown colour, with the fibres crossed and interlaced, so that very often it is difficult to work, although, as a rule, it splits easily, except in aged trees, when it is necessary to employ blasting-powder. It is extensively used for fence-posts, house-blocks, piles, culverts, bridges, &c., and is the most durable of all timbers employed for railway-sleepers. Unhappily, it has become comparatively rare in districts where it was formerly abundant.

12. **TOOTH-LEAVED BEECH** (*Fagus fusca*), Hooker f.; "Forest Flora," Plates 90, 91. Ahipara to Southland.

This fine tree is the tawhai, or tawhai-rau-nui of the Maoris; the black-birch of the settlers in Auckland, parts of Otago and Southland; the red-birch of Wellington, Nelson, and parts of Otago; and bull-birch of the Southern Lake District. So much trouble and loss have been caused by the misleading common names used in different districts, that the name of tooth-leaved beech has been brought into use to supersede them, and is generally adopted in the Government departments.

Tooth-leaved beech is a noble tree from 80ft. to 100ft. high, or more, with a trunk from 2ft. to 10ft. in diameter, clothed with rough, deeply-furrowed bark, which, in the mature state, is of a deep rich-brown colour, easily recognised at a short distance, but scarcely distinguishable at close sight. It is often black or blackish-brown. The leaves are larger than those of any other New Zealand beech. They are from ¾in. to 1½in. in length, and from ½in. to ¾in. broad, somewhat variable in shape, but always wedge-like at the base. When first developed they are clothed with short, downy hairs, which speedily disappear after the leaves attain their full size. The upper portions of the margins are cut into sharp rather coarse teeth. The fruits are woody cups formed of four valves or leaves, each valve having curious membranous transverse bands or plates on the outside, and the cup contains three or four three-sided nuts with a narrow membranous wing produced from each angle.

The wood is of a red colour, very tough, of great strength and high durability; consequently it is extensively used for bridges, railway-sleepers, piles, house-blocks, mine-props, also for house-framing, flooring, joists, and weather-boarding. As the timber is easily split it is much used for fencing, which, when properly erected, should last for forty years.

The weight when seasoned is 34·124lb. to 40·648lb. per cubic foot. The breaking weight varies from 156·83lb. to 262·5lb. It must rank amongst the most valuable timbers in the colony.

13. ENTIRE-LEAVED BEECH (*Fagus solandri*), Hooker f.; "Forest Flora," Plate 56. Cape Runaway to Otago; chiefly in lowland district: often local.

Like the preceding species, the entire-leaved beech has different names in different districts; black-birch, white-birch, red-birch, black-heart birch are amongst the most common. It is sometimes termed tawhairauriki by the Maoris. It is a handsome tree, commonly from 60ft to 90ft. high, with a trunk 3ft. to 4ft. in diameter, although specimens 100ft. high and upwards, with still larger trunks, are not infrequent. The leaves are small, about ¼in. long and 3/16in. broad, oblong and quite entire; white beneath and of very thick texture. The fruits are small. The wood is pale red or greyish in colour, often streaked with darker markings; the heart-wood is black and irregular in outline. It is very strong, tough, and durable if used when thoroughly ripe and properly seasoned. The wood of immature trees, or of trees that have stood too long, is not satisfactory. The weight per cubic foot when seasoned is 40·292lb., and the breaking weight 339·53lb.

14. BLAIR'S BEECH (*Fagus blairii*), T. Kirk; "Forest Flora," Plate 57. Central parts of North Island; Buller River and Little Grey; Lake Ohau; Lake Wakatipu and Dart Valley.

This handsome tree resembles the European beech more closely than any other New Zealand species, but has larger leaves, which are quite entire, green above and yellowish-brown beneath. It is usually 50ft. to 60ft. in height, with a trunk 2ft. to 3ft. in diameter.

The timber is similar to that of the entire-leaved beech, but somewhat smoother in the grain.

15. MAIRE-RAUNUI (*Olea cunninghamii*), Hooker f.; "Forest Flora," Plates 59A and 59B. Mongonui to Marlborough and Nelson.

A noble tree; one of the most valuable in the colony for strength and durability. It is from 50ft. to 70ft. high, with a trunk 3ft. to 6ft. in diameter; the leaves of young plants differ widely from those of the mature state, being from 6in. to 10in. long and about ¾in. broad; those of mature trees are from 3in. to 6in. long and nearly 2in. broad. The flowers are arranged in racemes developed in the axils of the leaves, and being destitute of petals are inconspicuous. With the exception of the puriri and manoao it is the strongest timber in the colony. It is of a deep-brown colour, dense, compact, even and straight in the grain, while it is easily worked and.

takes a good finish; it is of extreme durability, and when fully mature exhibits but little sap-wood. It is suitable for bridges, wharves, and constructive works generally; for railway-sleepers, farm-gates, posts, &c., and for the framing of railway carriages and wagons. It has been used for machine-beds, bearings, &c., framing for heavy machinery, millwrights' work, and agricultural implements. Old specimens are beautifully streaked and figured, and are in demand for ornamental cabinet work, veneers, ornamental turnery, &c. Its specific gravity varies from 1·113 to 1·193; weight per cubic foot 70·63lb. to 74·40lb.; breaking weight 327lb. to 335lb.

16. MAIRE (*Olea lanceolata*), Hooker f.; "Forest Flora," Plates 60, 61. Mongonui to Marlborough and Nelson.

The white maire, as it is often called by the bushmen, forms a round-headed tree 30ft. to 50ft. high, with a trunk 1ft. to 3ft. in diameter, clothed with white bark. The smooth, glossy, pointed leaves are about 3in. long, with veins prominent on both sides. The flowers are inconspicuous, and are followed by trigonous, bright-red fruits, containing a single seed. The wood is firm, even, compact, very strong, and durable, but of smaller dimensions than the preceding, and is used for similar purposes.

17. NARROW-LEAVED MAIRE (*Olea montana*), Hooker f.; "Forest Flora," Plate 29. Whangaroa North to Nelson.

A twiggy, round-headed tree, 20ft. to 50ft. high, or more, with a trunk 1ft. to 2ft. in diameter, clothed with brownish-grey bark. The timber closely resembles that of the preceding species, and is applied to the same purposes. It has also been used for the teeth of gearing-wheels, &c.

18. THE NORTHERN RATA (*Metrosideros robusta*), A. Cunningham; "Forest Flora," Plate 128. North Cape to Greymouth.

The northern rata forms a noble tree with an irregular head. It is sometimes 100ft. in height and 3ft. to 12ft. in diameter. It was formerly supposed to be a climber, owing to its peculiar habit. The dust-like seeds are often blown into the forks of lofty trees and readily germinate in the mould formed by the decay of epiphytic vegetation, so that very often the plant commences life at a great height above the ground, and continues to grow in this position for a longer or shorter period, until its store of nutritive material is exhausted, when it sends one or more aërial roots down the stem of the supporting tree. The aërial roots enter the soil, and, drawing larger supplies of food, soon become changed into stems. Some of these stems have been found over 20ft. in diameter. Sooner or later the supporting tree is killed by the usurping rata: if two or more aërial roots are given off it is squeezed to death; and the dead stem may retain its position for years, sometimes completely hidden as the rata stems increase in bulk. The leaves are about 1½in. long, quite entire, and of rather thick texture. The flowers form compact clusters at the tips of the branchlets, and present a brilliant appearance

The wood is of a dull-red colour, plain, straight in the grain, dense, and heavy; it is durable, and of great strength. Its large tortuous limbs are often used for ship timbers, and it is in demand for the arms of telegraph posts. It is suitable for the framework of railway wagons, for bearings, machine-beds, bridges, wheelwrights' work, &c., and is highly valued for firewood.

19. The SOUTHERN RATA (*Metrosideros lucida*), Menzies; "Forest Flora," Plate 58. Great Barrier Island and Thames Goldfield to Auckland Islands.

The southern rata or ironwood is easily recognised by the pale-coloured twigs, sharp-pointed leaves, and large panicles of bright scarlet flowers, and invariably terrestrial habit. One of the most magnificent sights the colony has to offer is a mountain-slope covered with the southern rata when the brilliant flowers are touched by the rising sun—rarely the flowers are of a lustrous golden-yellow. The wood has similar qualities to the northern rata, but it is often gnarled and twisted; it is of great strength and durability, and is used for similar purposes. It is considered of higher value than the preceding species for heavy framing; it is of smaller dimensions, rarely exceeding 50ft. to 60ft. in height, and 2ft. to 6ft. in diameter; at great altitudes it is reduced to a mere shrub. Its specific gravity varies from 1·010 to 1·146; its weight per cubic foot from 62·953lb. to 71·429lb., and its breaking-weight from 175lb. to 255·4lb.

20. POHUTUKAWA (*Metrosideros tomentosa*), A. Cunningham; "Forest Flora," Plate 118. North Cape to the Mimi River, Taranaki.

The pohutukawa sometimes attains a height of 70ft., with a trunk from 2ft. to 4ft. in diameter, and large irregular, massive, spreading arms. The brown bark is much furrowed and wrinkled. The leaves are simple, from 1in to 4in. long, and ¾in. to 1¼in. broad, of thick texture, silvery-white beneath. The flowers are of a deep blood-red colour, and form dense compact panicles at the tips of the branches. When in full flower a fine tree forms a magnificent object. The wood is excessively dense, very strong, and of great durability. It is extensively used for ship-building, machine-beds, bearings, trenails, &c., and for various special purposes.

21. SMALL-LEAVED POHUTUKAWA (*Metrosideros polymorpha*), Forster; "Forest Flora," Plate 119. Kermadec Islands.

This species is abundant on the Kermadec, but does not occur elsewhere in the colony. It is somewhat smaller than the preceding species, and affords timber of similar quality. In a few years it will prove of great value to Auckland ship-builders, as the pohutukawa is becoming rare in many localities.

22. MANUKA-RAURIKI (*Leptospermum ericoides*), A. Richards; "Forest Flora," Plate 69. North Cape to Otago.

An attractive tree with slender branches, clothed with short linear leaves ¼in. long, and producing a profusion of small white flowers. Its height is from 40ft. to 60ft., and the trunk is from 1ft. to 3ft. in diameter, clothed with thin bark, which falls away in long narrow flakes. The timber is straight grained, compact, heavy, tough, and elastic, usually of a red colour. It is of great strength and durability, and is largely used for piles, bridges, marine jetties, house-blocks, fence-rails, wheelwrights' purposes, cogs for machine wheels, axe-handles, &c., and is highly prized for firewood. In the young state it is often called white tea-tree. Its specific gravity varies from 0·906 to 1·042; its weight when seasoned from 56·46lb. to 64·95lb. Its breaking weight is from 200lb. to 302lb.

23. MAIRE-TAWHAKE (*Eugenia maire*), A. Cunningham; "Forest Flora," Plate 122. Mongonui to Queen Charlotte Sound, Pelorus.

The maire-tawhake is a handsome conical tree 25ft. to 50ft. high, with a straight trunk 1ft. to 2ft. in diameter, clothed with thin white bark; the leaves are entire, and the branchlets carry rather large panicles of white flowers resembling those of a myrtle. These are succeeded by irregularly-shaped red fruits as large as a nut. The timber, although small, is of great value for many purposes requiring great strength and durability; it is straight in the grain, even, dense, and heavy; it is of a pale brown colour, and when figured is valued by the cabinetmaker, but is most frequently used for piles, mooring-posts, fence-posts, &c. Its specific gravity varies from 0·618 to 0·943; its weight per cubic foot, 38·45lb. to 60lb.; its breaking weight ranges from 135lb. to 225lb.

24. KOWHAI (*Sophora tetraptera*), Aiton; "Forest Flora," Plates 50, 51, 52. North Cape to Southland; Chatham Islands.

This elegant tree varies from 25ft. to 40ft. in height, with a trunk 1ft. to 3ft. in diameter; frequently it is a much branched shrub 10ft. to 20ft. high, with several stems of no great thickness. Its light feathery foliage and showy yellow flowers, the appearance of which marks the near approach of spring, render it a favourite for ornamental planting. The leaves vary from ½in. to 7in. in length, and consist of a row of oval or oblong leaflets arranged on each side of a common leaf stalk with a terminal leaflet at the apex. It is one of the few deciduous trees in the colony, and the flowers appear in August and September, before the new leaves are developed; they are from 1in. to 1½in. in length, and are carried in pendulous racemes. The pod or tomentum is curiously constricted between the seeds, and has four narrow membranous winged margins. The wood is of a rich brown colour, compact and heavy, very strong, tough and elastic, extremely durable. It is used for piles, house-blocks, braces, bearings for shafts and machinery, agricultural implements, cabinet work, and ornamental purposes generally.

Its specific gravity is 0·667 to 1·037; its weight per cubic foot 41·57lb. to 64·66lb.; and its breaking weight 170lb. to 275lb.

Class II.

25. **Rimu, Red-Pine** (*Dacrydium cupressinum*), Solander; "Forest Flora," Plates 18 to 22. North Cape to Stewart Island.

In the young state, under favourable circumstances, the rimu is one of the most charming trees known; its conical outline and long pendulous branchlets suggest the idea of a living fountain. In old specimens this symmetrical outline is completely lost; the arms spread irregularly, and carry the uneven drooping branchlets at the tips, so that the tree often presents a ragged, uneven appearance. It attains the height of from 40ft. to 80ft. with a trunk from 2ft to 4ft. in diameter, clothed with rugged bark, which alone is sufficient to distinguish it from any other New Zealand pine. The leaves are awl-shaped, from $\frac{1}{12}$in. to $\frac{1}{4}$in. long, closely overlapping all round the branchlets, and very uniform in old trees. The fruit is a nut, seated on a red fleshy receptacle, having a few green scales on its surface. Rimu is the chief building timber employed over two-thirds of the colony, and is used for framing, flooring, joists, weatherboards, mantelpieces, &c.

It is of a brown colour, varying greatly in intensity, but often beautifully shaded, resembling some varieties of rosewood, so that it is extensively used in the manufacture of plain and ornamental furniture, for which indeed it is especially suited.

Although not durable when exposed, it is of great strength, and may be used for beams under cover. In Taranaki, selected logs are sometimes employed in the construction of bridges, great care being taken to prevent the access of water at the joists; but its general use, in exposed constructive works, is certainly unwise, although occasionally the heart-wood of very old logs is so thoroughly saturated with resin that it may be used for railway-sleepers and other purposes where strength and durability is required.

Its specific gravity is 0·550 to 0·664, and its weight per cubic foot, when seasoned, is from 24·38lb. to 40·11lb. Its breaking-weight is 350·88lb., so that it is equal to English oak in strength. Rimu occupies a larger portion of the forest area than any other New Zealand timber.

26. **Kahikatea, White-Pine** (*Podocarpus dacrydioides*), A. Richard; "Forest Flora," Plate 31. Mongonui to Southland.

A noble tree, 60ft. to 150ft. high, with a remarkable straight trunk, 2ft. to 4ft. and upwards in diameter. It often forms vast forests in swampy situations, but is also found on the hills. Old swamp specimens often develop fluted buttresses, but usually the trunk is remarkably symmetrical. In young trees the leaves are $\frac{1}{4}$in. long, spreading, and of a deep brown colour, arranged in a single row on each side of the branches. In the mature state they are reduced to small scales, about $\frac{1}{12}$in. long, closely appressed to the branchlets, which resemble those of a cypress. The fruit is a red drupe, the jet-black seed being partly exserted at the apex. The wood is white or pale-yellow, tough, elastic, and of great strength, but it is not of great durability when exposed, although often employed for general building purposes, especially for flooring. It is extensively used for cheap furniture, and is exported to a considerable extent. Unhappily it is often attacked by a small boring-beetle, the larvæ of which drive their miniature tunnels through it in all directions until at length it crumbles to pieces.

In the Marlborough and Nelson districts a variety of this plant, growing chiefly on the hills, produces timber of a yellow colour, which is considered to be much more durable than the ordinary kind.

The specific gravity of the seasoned timber is 0·459 to 0·557; its weight per cubic foot 29·11lb. to 29·505lb. A piece 2ft. long and 1in. square, supported at each end and loaded in the middle, requires a weight of from 308lb. to 358lb. to break it. Occasionally logs are met with having a much higher specific gravity.

27. MIRO TOROMIRO (*Podocarpus ferruginea*), Don; "Forest Flora," Plate 84. Mongonui to Stewart Island.

A round-headed tree, much resembling the English yew, with a trunk from 50ft. to 90ft. high, and from 1ft. to 3ft. in diameter. When growing on hills at an altitude of from 1,500ft. to 2,000ft. the trunk is usually very short in proportion to the branches. The leaves are from ½in. to ¾in. long, acute at the tips with a distinct mid-rib, green on both surfaces; those of very young plants are rather longer than those of the mature state, but all alike become of a rusty brown when dried. The handsome solitary fruits are of a bright red colour, ¾in. long and carried on short stalks. The timber resembles the matai, but is of a deeper brown, and may be easily distinguished in cross sections by the dark colour of the heart-wood, which is somewhat irregular in shape. It is clear and straight in the grain, of even texture, firm, elastic, and strong; but is not durable when exposed, and speedily decays if water is allowed to gain access to the joints. It is useful for all kinds of indoor work, and from its strength is specially suitable for beams under cover. On account of its hardness it is liable to split when nails are driven without previous boring, and less easily worked than other kinds; it is, however, found to be of great value for marine piles, when the bearing joints are carefully protected.

Its mean specific gravity is 0·787; weight per cubic foot 49·071b.; breaking weight, 197·2lb.

It is most plentiful in the South Island, and forms a large portion of the forests of South and Stewart Islands. In Otago it was formerly known as bastard black-pine, a designation which has happily fallen into disuse.

28. TANEKAHA (*Phyllocladus trichomanoides*), Don; "Forest Flora," Plates 6, 7. Auckland, plentiful; rare in Hawke's Bay, Marlborough, and Nelson.

The tanekaha is one of the celery-topped pines, and is a strikingly handsome tree 50ft. to 80ft. in height, with smooth, dark-grey or blackish bark and spreading branches, which are often whorled. The fan-shaped expansions resembling leaves are modified organs termed phyllodia, and bear the female flowers on their margins; the true leaves are small and insignificant, speedily falling away. The wood is remarkably sound, straight in the grain, of firm and even texture, and is one of the strongest timbers in the colony, but not suitable for situations in which it becomes alternately wet and dry. It has been used for water-tanks with excellent results, for all kinds of inside work, and even for weatherboards. Notwithstanding its great strength it should never be used for bridges or constructive work of any kind. It is occasionally employed for the masts of small craft, and is largely used for mine-props on the Thames Goldfield. The young plants, being straight and slender and having the branches given off in regular whorls, make excellent ornamental stocks for gig whips, &c., and are specially suitable for walking-sticks.

The bark is the most valuable in the colony for tanning purposes.

29. TOATOA (*Phyllocladus glauca*), Carr; "Forest Flora," Plates 98, 99. Mongonui to Te Aroha and Patetere.

"The most charming of all the New Zealand pines" is a handsome tree 25ft. to 40ft. high, with a trunk 12ft. to 18ft. in diameter; the large foliaceous phyllodia are sometimes 2in. long and 1½in. broad, somewhat fan-shaped. The male catkins are crowded at the tips of the branches, and the fruits are lateral, forming cones as large as hazel nuts. The wood is white, very straight in the grain, and splits easily. It is tough, strong, and elastic, but in all probability will not prove durable when exposed.

The bark is probably equal to that of the tanekaha for tanning purposes.

30. MOUNTAIN TOATOA (*Phyllocladus alpinus*), Hooker f.; "Forest Flora," Plate 100. Mountain districts from Cape Colville to Southland.

This species rarely exceeds 25ft. in height, and the trunk is usually 5in. to 12in. in diameter; the phyllodia are smaller and thicker than in the preceding species.

The wood is similar to that of the tanekaha, being of equal strength. It is much valued by bushmen for levers, lifting-poles, &c. Tar is occasionally extracted from it, but it is of no value for general building purposes.

31. **Mountain-Beech** (*Fagus cliffortioides*), Hooker f.; "Forest Flora," Plates 101, 101a. Waikare Moana to Preservation Inlet.

This is sometimes termed tawai-rau-riki by the Maoris, and mountain-birch, white-birch, &c, by shepherds and bushmen. It rarely exceeds from 40ft. to 50ft. in height, and when growing above 3,000ft. is reduced to 6ft. or 8ft., or dwarfed into a flat-topped bush. Isolated specimens are exceedingly beautiful and picturesque. The wood is of small dimensions, and although of considerable importance in the mountain districts, where it forms the only timber, does not enter into commerce.

32. **Silver-Beech** (*Fagus menziesii*), Hooker f.; "Forest Flora," Plate 89. Hauraki Gulf to Colac Bay, Southland.

The silver-beech is the most beautiful and attractive of all the New Zealand beeches; unhappily different common names have been applied to it in different districts, so that it is variously termed brown-birch, red-birch, white-birch, silver-birch, &c. It is usually from 80ft. to 100ft. in height, with a trunk 2ft. to 4ft. in diameter. On immature trees the bark is thin, whitish, and silvery, but on old specimens it becomes rough and furrowed at the base. The leaves are smooth, somewhat rhomboid in shape, about ½in. long by ⅓in wide, with blunt rounded teeth. The fruit is similar to that of the tooth-leaved beech, but the transverse plates on the valves are fringed with minute stalked glands,

The wood is of a deep red colour, plain, remarkably straight and even in the grain, of great strength, but not durable when exposed. Although rather heavy it is used for the framing of houses, except ground plates, and for all kinds of indoor work, and for the manufacture of ordinary furniture; it is especially useful for tubs, buckets, and other coopers' ware, more particularly for wine and spirit casks. Its weight, when seasoned, is 38·99lb. per cubic foot, and its breaking weight 185·50lb. It is valuable for large beams under cover.

33. **Pukatea** (*Laurelia novæ-zelandiæ*), A. Cunningham; "Forest Flora," Plate 71. Mongonui to Westland.

A lofty tree with pale bark, usually from 90ft. to 120ft., or even 150ft. high, with a trunk from 3ft. to 6ft. in diameter, usually flanked with radiating buttresses at the base, which nearly double the diameter of the trunk. The glossy ovate or oblong leaves are ¾in. to 1½in. wide and barely twice as long. The wood is of a pale yellowish-brown colour, streaked or clouded with deeper shades, and often very ornamental, rather soft but of great strength and toughness. It does not split, and as it is difficult of combustion would be valuable for flooring boards of factories, &c. It has been employed in boat-building, and was formerly valued by the Maoris for canoes. It has been used for house-framing, except ground-plates and weather-boards. It is excellent for common furniture and for many kinds of ornamental work.

34. **Hinau** (*Elæocarpus dentatus*), Vahl; "Forest Flora," Plate 11. North Cape to Catlin's River.

The hinau forms a round-headed tree 40ft. to 60ft. high, with a rather short trunk 1ft. to 3ft. in diameter, clothed with grey bark. The branches are often naked except at the tips; the leaves are linear-oblong, 2in. to 3in. long, and the drooping white flowers are produced in racemes which spring from the naked wood or from the axils of the leaves, and present a most attractive appearance. The wood is of a dull brown, usually with darker or even black heart-wood; it splits easily, and is tough, strong, and of great durability. It is used for piles, sleepers, bridges, culverts, posts, rails, &c., but is worthless for firewood, as it burns with difficulty. Its bark is highly valued by the tanner.

35. Pokaka (*Elæocarpus hookerianus*), Raoul; "Forest Flora," Plates, 12, 13. North Cape to Stewart Island, but often rare and local.

The pokaka bears much resemblance to the hinau, but is of smaller dimensions; its usual height is about 50ft.: the trunk, 2ft. to 3ft. in diameter, is clothed with white bark. The leaves are shorter and narrower than the preceding species, and the flowers are smaller and less attractive. In the young state the branches are tortuous and interlaced with narrow linear or lobed leaves which bear no resemblance to those of the mature state. The timber is whitish, tough, and compact, but is not durable when exposed. The bark has been employed for tanning, but is inferior to that of the hinau.

36. Taraiki (*Beilschmiedia tarairi*), Bentham and Hooker f.; "Forest Flora," Plate 43. North Cape to Lower Waikato and Poverty Bay.

The tarairi is a handsome tree 60ft. to 80ft. high, with stout branches and large broad ovate or obovate leaves of thick texture, brown above and white beneath. The fruit is similar to that of the tawa, but larger. The wood is white, but red at the heart, and splits with the greatest ease; it is, however, not durable when exposed. It is sparingly used as a substitute for the mangeao in the manufacture of ship's blocks and light carts, but is not sufficiently elastic for this work. It is occasionally employed for the manufacture of cheap furniture; and, as it burns quickly, is largely used as a cheap firewood.

37. Tawa (*Beilschmiedia tawa*), Bentham and Hooker f.; "Forest Flora," Plate 126. Spirits' Bay to Marlborough and Nelson.

In its slender twiggy branches and willow-like foliage the tawa differs widely from any other tree in the New Zealand forests. In some districts it is so plentiful that it constitutes fully two-thirds of the timber. It is from 40ft. to 80ft. high, with a trunk from 1ft. to 4ft. in diameter, clothed with black bark. The lanceolate leaves are from 2in. to 4in. long; the flowers are green and inconspicuous, but the handsome fruit resembles a damson, and is about the same size. The wood is white, firm, hard, even, and very straight in the grain, but becomes rather brittle with age. It is not durable when exposed. It is now much used for dairy-ware, buckets, tubs, pails, and especially for butter-casks, for which it is highly valued, and preferred to either kauri or sycamore. Spears from 30ft. to 36ft. long were made from the trunk by the Maoris. The wood is valued for firewood, as it burns with comparative ease when wet.

38. Titoki, Tokitoki (*Alectryon excelsum*) De Candolle; "Forest Flora," Plate 92. Mongonui to Westland.

The titoki, or New Zealand ash, as it is sometimes called, is a beautiful tree 40ft. to 60ft. high, with a trunk 1ft. to 3ft. in diameter; the leaves are from 5in. to 13in. long, and consist of from nine to fifteen stalked pointed leaflets on each side of a common leaf-stalk. The flowers are small, forming large reddish-brown panicles which are followed by the curious fruits. These are very handsome: the outer coat is hard and woody, with a ridge on the upper surface which is produced backwards into a short spur; the fruit-vessel becomes ruptured transversely and exhibits a glossy jet-black seed, imbedded in a bright scarlet granulated fleshy cup, forming a charming and harmonious contrast of colour. The wood is very straight in the grain, very even, and easily worked. It is highly valued for its great toughness, strength, and elasticity, but is not durable when exposed. It is used for bullock-yokes, swingle-trees, axe-handles, light framing for machinery, and especially for light spokes, hubs, felloes, panels, framing for light vehicles, and bent ware.

Its specific gravity varies from 0·904 to 0·929; its weight per cubic foot from 56·31lb. to 57·91lb.; and its breaking weight from 246lb. to 250lb.

39. Tawari (*Ixerba brexioides*), A. Cunningham; "Forest Flora," Plate 48. Bay of Islands and Hokianga to northern part of Hawke's Bay.

The elegant foliage and striking flowers of the tawari render it one of the most beautiful trees in the colony. It is from 30ft. to 70ft in height, with a trunk 1ft. to

2ft. in diameter. The leaves are narrow and lanceolate in shape, of a pale glossy-green, and the handsome flowers, which are from 1in. to 1¼in in diameter, are produced in terminal panicles. The wood is white, with a reddish-brown heart, but has been utilised only for mine-props and other temporary purposes.

40. Mangeao, Tangeao (*Litsea calicaris*), Bentham and Hooker f.; "Forest Flora," Plate 10. Mongonui to Rotorua.

A small tree rarely exceeding 40ft. in height, with a trunk 1ft. to 2ft. in diameter. The leaves are ovate or oblong, 3in. to 4in. long; the cream-coloured flowers are produced in small umbels, which spring from the axils of the leaves. The wood is white, compact, strong, of great elasticity, and is suitable for any purpose requiring strength, toughness, and elasticity, with a light weight. It is valued for bullock-yokes, coopers' work, coach-panels, shafts, light felloes, and all kinds of bent ware. It is largely in demand for ships' blocks, for which purpose it is considered superior to English ash. It is not durable when in contact with the ground.

Its specific gravity is 0·621, and its weight 38·70lb. per cubic foot.

41. Rewarewa (*Knightia excelsa*), R. Brown; "Forest Flora," Plate 35. Mongonui to Marlborough.

This fine tree has much the habit of the Lombardy poplar, and is one of the most striking trees in the New Zealand forests, its strict ascending branches being unique among the arboreal flora. It attains the height of from 70ft. to 100ft., with a trunk 1½ft. to 3ft. in diameter, clothed with dull brown bark. The leaves are from 5in. to 8in. long, rigid, and obtuse, with coarse teeth. The deep red flowers are arranged in dense cylindrical racemes 2in. in diameter, which spring from the naked bark or from the axils of the leaves. The timber splits easily, is straight in the grain, highly ornamental, handsomely mottled, and often clouded; it is of great strength and very difficult of combustion. It is largely employed for ornamental cabinet work and turnery, and is valued for inlaying and writing-desks, also for ornamental fittings for steamers and houses. It is not durable when exposed, but has been used for shingles and similar purposes.

Its specific gravity is 0·785; weight per cubic foot 48·92lb.; the breaking weight of a piece 12in. long and 1in. square, fixed at one end and loaded at the other, is 161lb.

42. Tawhera (*Weinmannia silvicola*), Banks and Solander; "Forest Flora," Plate 72. North Cape to northern part of Hawke's Bay.

This species attain its greatest development in situations at an altitude of from 1,500ft. to 3,000ft. At the sea-level it rarely exceeds 20ft. in height, but at 2,000ft. specimens 70ft. high and upwards, with trunks 1ft. to 3ft. in diameter, may be found. In all states it forms a handsome and attractive object when in full bloom. The leaves are extremely variable, sometimes 6in. long with many pairs of ovate or lanceolate leaflets, at others consisting of three leaflets, or even of a single leaflet. The flowers are whitish, very small and developed in profusion at the tips of the branchlets. The timber is of a light red colour, very even, strong, tough, and elastic, but opinions differ as to its durability. It has been used for a variety of purposes, and makes excellent firewood; but the tree is more valued for its bark, which has been extensively used for tanning.

43. Towhai, or Kamahi (*Weinmannia racemosa*), Forster; "Forest Flora," Plate 73. Middle Waikato to Stewart Island.

This species is similar to the preceding, but of larger dimensions. Seedling plants exhibit compound leaves, but these speedily disappear, and the leaves of the mature state are simple, 1in. to 4in. long, ovate and coarsely toothed. The flowers are similar to those of *W. silvicola*, but the seed-pods are hairy. The wood is deeper in colour than that of the preceding form, strong and durable: in many cases it is prettily marked, and is suitable for cabinet-making and for ornamental turnery, &c. It is used for house-blocks, piles, fence-posts, tramway-sleepers, &c.,

and for railway-sleepers in moist situations It is especially suited for beams under cover, but when exposed to the sun, longitudinal cracks develop and water gains access. It has been used for house-framing. Its weight per cubic foot, when seasoned, is 38·717lb., and its breaking weight 314·7lb. The bark is highly valued for tanning.

44. POROKAIWHIRI (*Hedycarya dentata*), Forster; "Forest Flora," Plate 110. Three Kings Islands to Port Chalmers.

A small tree 30ft. to 50ft. high with a trunk 1ft. to 2ft. in diameter, but often reduced to a short shrub, branched from the base. The leaves are from 2in. to 4in. long, and from 1in. to 2in. broad, quite entire; the flowers spring from the axils of the leaves and are succeeded by the pale red fruits, which are produced in profusion, and present an attractive appearance. The wood is white, soft, and splits readily, but is not durable when exposed.

45. KOHEKOHE (*Dysoxylum spectabile*), Hooker f.; "Forest Flora," Plates 64, 65. Mongonui to Marlborough and Nelson.

A round-headed tree 20ft to 50ft high, with a trunk 1ft. to 4ft. in diameter, clothed with pale bark. The leaves are from 12in. to 18in. long, and consist of about four pairs of large entire leaflets 3in. to 7in. long; the flowers form drooping panicles 12in. long, springing from the naked bark or from the axils of the leaves; the fruit is a pendulous rounded capsule with thick leathery valves, and is usually three-celled, the seeds being enclosed in a scarlet envelope. The wood is even in the grain, soft and light, but fairly durable. It is used by the cabinetmaker, especially for work in which light timbers are required, and makes excellent firewood. It is greatly prized for wire-fence posts in loose sand; in situations of this kind it is more durable than totara. Its specific gravity is 0·678; its weight per cubic foot 42·25lb., and its breaking weight 117·4lb.

Class III.

46. HOROPITO (*Drimys axillaris*), Forster; "Forest Flora," Plate 1. North Cape to Stewart Island.

A shrub or small tree sometimes 30ft. high; the trunk rarely exceeds 8in. in diameter, and is clothed with black bark. Leaves entire, of a glossy green, or, in the South, of a yellowish green with red blotches. Flowers, small; wood, reddish, with pale markings, chiefly used by the cabinetmaker for inlaying.

47. TARATA (*Pittosporum eugenioides*), A. Cunningham; "Forest Flora," Plate 49. North Cape to Southland.

A round-headed tree 20ft. to 40ft. high, clothed with white resinous bark Its leaves are of a delicate pale green, 2in. to 4in. long, and upwards of 1in. wide. The flowers are pale yellow, produced in rather large corymbs at the tips of the branches. The wood is white and compact, tough, elastic, and strong, but not durable when exposed. It is largely used by the wood-turner, and is suitable for chisel-handles, &c. It is extremely difficult of combustion. It is called by the settlers white mapau, turpentine, maple, &c.

48. KARO (*Pittosporum crassifolium*), Banks and Solander; "Forest Flora," Plate 14. North Cape to Poverty Bay.

A tall shrub or small tree 30ft. high, with a rigid habit of growth. Leaves, 2in. to 3in. long, entire, whitish beneath, with chocolate-coloured flowers and decurved capsules, the size of small walnuts. The wood is white, tough, strong, and difficult of combustion. It is occasionally used for inlaying.

49. TAWHIWHI (*Pittosporum tenuifolium*), Banks and Solander; "Forest Flora," Plate 46. North Cape to Stewart Island.

A shrub or small twiggy round-headed tree 30ft. to 40ft. high; trunk, 12in. to 18in. in diameter, clothed with smooth, black leaves; leaves, 1in. to 1½in. long;

flowers, chocolate-coloured, springing from the axils of the leaves. Fruit, an erect, woody capsule as large as a hazel nut. Wood, brownish-white, even in the grain, tough, elastic, and very strong, but not durable when exposed. Its specific gravity is 0·959 to 0·972, and its weight per cubic foot 59·79lb. to 60·57lb. Its breaking weight is 243lb. for a piece 12in. long 1in. by 1in., supported at one end and weighted at the other.

50. MAHOE (*Melicytus ramiflorus*), Forster; "Forest Flora," Plate 3. Kermadec Islands to the Bluff.

A shrub or small tree, 25ft. to 30ft. high, with pale bark and inconspicuous greenish flowers; leaves 3in. to 5in. long; fruit a small rounded berry. The leaves are eaten by stock. The wood is of a pale brown colour, and very brittle; it is occasionally used for inlaying, and is valued for charcoal for the manufacture of gunpowder. It is largely used for firewood.

51. HOUI or MANATU (*Plagianthus betulinus*), A. Cunningham; "Forest Flora," Plates 103, 104. Mongonui to Stewart Island; Chatham Islands.

The ribbon-wood, as it is termed by the settlers, is a graceful tree, closely resembling the European birch in habit; it is from 30ft. to 60ft. in height, with a trunk from 1ft. to 3ft. in diameter; the leaves are from 1in. to 3in. long, deeply toothed or lobed. The flowers are small and crowded in panicles at the tips of the branches. The wood is white and of even grain; it splits easily, but is not durable when exposed; it is specially suited for "white-wood furniture." When prettily marked it is valued by the inlayer.

52. WHARANGI (*Melicope ternata*), Forster; "Forest Flora," Plate 66. Kermadec Islands; North Cape to Marlborough and Nelson.

A shrub or small tree, rarely exceeding 20ft. in height, with pale yellow leaves, consisting of three leaflets dotted with oil-glands. The wood has a pale satiny lustre, and is used for inlaying, &c.

53. KAIKOMAKO (*Pennantia corymbosa*), Forster; ' Forest Flora," Plate 78. Mongonui to Otago.

A shrub or tree, 40ft. high; the leaves are broadly oblong and irregularly-toothed or lobed; the fragrant white flowers are produced in panicles at the tips of the branches, and are followed by the shining black fruits. The wood is strong, compact in the grain, and durable. It is often prettily marked, and is then utilised by the cabinetmaker and the wood turner. It is one of the woods used by the Maoris to obtain fire by friction.

54. AKE (*Dodonæa viscosa*), Linné; "Forest Flora," Plate 17. North Cape to Banks Peninsula; Chatham Islands.

A shrub or small tree, sometimes 30ft. high, but usually smaller, trunk rarely exceeding 1ft. in diameter; bark reddish-brown, falling away in narrow flakes; the leaves are quite entire and broadest at the apex, the flattened fruits with broad membranous wings are very conspicuous. The wood is remarkably dense and heavy, blackish or dark-brown, variegated with streaks or patches of white; of great strength and durability. It is valued for picture-frames, cabinet work, inlaying, machine bearings, and was formerly used for clubs and other weapons.

55. KARAKA (*Corynocarpus lævigata*), Forster; "Forest Flora," Plate 88. Kermadec and Chatham Islands; North Cape to Banks Peninsula.

A noble evergreen tree, 30ft. to 50ft. high, trunk 1ft. to 3ft. in diameter; leaves 3in. to 7in. long, 2in. to 3in. broad; flowers, greenish-white, in panicles at the tips of the branches, followed by deep orange fruits. The wood is white and splits easily, but is perishable. As it is the largest tree in the Chatham Islands the Morioris have utilised it for canoes. The kernel of the fruit is poisonous in the raw state, but when properly cooked is considered highly nutritious by the Maoris.

56. Putaputa-weta (*Carpodetus serratus*), Forster; "Forest Flora," Plate 47. Mongonui to Stewart Island.

A shrub or small tree, rarely exceeding 30ft. in height, with branches spreading in a fan-shaped manner; the leaves are entire and sharply toothed, ¾in. to 1½in. long; the white flowers are arranged in broad clusters, developed in the axils of the leaves. The wood is white, tough, strong, and elastic, not unfrequently it is prettily marked, but lacks durability when exposed. It is used for axe-handles and similar purposes.

Its mean specific gravity is 0·822; its weight per cubic foot 51·24lb.; and its breaking weight 177·6lb.

57. Kumarahou (*Quintinia serrata*), A. Cunningham; "Forest Flora," Plate 136. Mongonui to Jackson's Bay.

The New Zealand lilac, as it is often termed, is a shrub or small tree 40ft. high, with a trunk 1ft. to 2ft. in diameter; the leaves are 2in. to 6in. long and ¾in. to 2in. wide, quite entire; the deep lilac-coloured flowers are arranged in erect racemes 1in. to 4in. long, springing from the axils of the leaves. The wood is of a light red colour, often prettily marked and figured, tough, strong, and elastic, but not durable when in contact with the ground. It is used by the cabinetmaker, and, in the absence of better timber, might be employed for inside work.

58. Makamaka (*Ackama rosæfolia*), A. Cunningham; "Forest Flora," Plate 63. Mongonui and Hokianga to Whangarei.

A handsome shrub or tree, 20ft. to 50ft. high, with trunk 1ft. to 2ft. in diameter; the leaves are from 3in. to 10in. long, and consist of from three to ten pairs oblong leaflets, with toothed margins; the flowers are arranged in lax panicles. The wood is of a brownish-red colour, and similar to that of *Weinmannia silvicola*. The bark is used for tanning.

59. Manuka, or Kahikatoa (*Leptospermum scoparium*), Forster; "Forest Flora," Plate 117. North Cape to Stewart Island.

This is the most abundant scrub in the colony, in some localities covering thousands of acres, sometimes only 3ft. to 4ft. high, frequently forming a kind of spinny with straight stems 10ft. to 15ft. high, 3in. to 5in. diameter, and more rarely a small tree 20ft. to 30ft. high, with a trunk 1ft. to 2ft. diameter. The leaves and flowers are larger than those of the manuka-rauriki (No. 22), and the wood is similar, but of a deeper colour and inferior in strength. An infusion of the leaves is often used by bushmen as a substitute for tea.

60. Ramarama (*Myrtus bullata*), Banks and Solander; "Forest Flora," Plate 131. Mongonui to Marlborough.

This small myrtle is a shrub or small tree 30ft. high; its reddish-brown ovate leaves are characterised by having the spaces between the veins being tumid or inflated, as if blistered—a peculiarity which distinguishes it from all other native plants; its charming white flowers are developed from the axils of the leaves. The wood is red and often prettily figured; it is straight, compact, and of considerable strength. It is used for ornamental cabinet work and inlaying, as well as for the handles of chisels, axes, &c., and makes excellent firewood.

61. Small-leaved Ramarama (*Myrtus ralphii*), Hooker f.; "Forest Flora," Plate 94. Auckland to Nelson.

A shrub or small tree, sometimes 20ft. high, and resembling *M. bullata*, but with smaller and less tumid leaves. The wood is prettily streaked and mottled, and is applied to the same purposes as the preceding.

62. Rohutu (*Myrtus obcordata*), Hooker f.; "Forest Flora," Plate 70. Hauraki Gulf to Otago.

A shrub or small tree, rarely exceeding 15ft. in height. The leaves are about ½in. long, broadest at the apex, where they are indented by a shallow notch; the white flowers are developed in the axils of the leaves. The wood, although small, is of great strength, tough, and elastic; it is often prettily marked, and is used for all kinds of ornamental work, turnery, &c., as well as for the handles of carpenters' tools.

63. Rohutu (*Myrtus pedunculata*), Hooker f.; "Forest Flora," Plate 112. Mongonui to Stewart Island.

This is the most common of the native myrtles, and attains the height of 20ft. under favourable conditions. It resembles the preceding species; but the leaves are rounded at the apex, and destitute of the notch. The wood is applied to the same uses.

64. Kotukutuku or Kohutuhutu (*Fuchsia excorticata*) Linné f.; "Forest Flora," Plate 36. North Cape to Stewart Island.

The large native fuchsia varies from a shrub to a tree 45ft. high, with a trunk 1ft. to 3ft. in diameter, clothed with thin, reddish-brown bark, which, in old specimens, divide into numerous paper-like layers. The pointed leaves are very soft, white beneath, and from 2in. to 4in. long; the flowers are solitary, pendulous, at first greenish, streaked or blotched with deep purple, passing into a dull red. As the trunk is often gnarled and curved, it is difficult to obtain timber of great length; but with this drawback it is one of the strongest and most durable timbers in the colony. It is difficult of combustion, hard, dense, and heavy. In many instances the deep, brown colour which forms the ground is relieved with broad streaks of a paler shade, and narrow waved black markings, which render it highly ornamental. It is used for house-blocks and fencing-posts, which seem almost indestructible either by the lapse of time or the ravages of fire. After a forest has been destroyed by fire, fencing-posts of this wood have been found uninjured, not even charred. It is highly prized for ornamental work, picture frames, turnery, inlaying, &c., and contains 5·3 per cent. of tannin.

65. Horoeka (*Pseudopanax crassifolium*), Seeman; "Forest Flora," Plates 38A to 38D. Mongonui to Stewart Island.

The "lancewood" of the settlers exhibits remarkably diverse forms of foliage at difference stages of its existence; but space does not allow of a detailed description being given here. In young plants, 3ft. to 15ft. high, the stems are unbranched, and the leaves are entire, slightly toothed and excessively rigid; from 1ft. to 3ft. long or more, but only ⅓in. broad; they are invariably deflexed, the lower surface forming a very acute angle with the stem, so that the tips of the leaves are nearest the ground. In the next stage the leaves are erect, compound, and consist of three or five leaflets springing from the apex of an erect leafstalk; but in the mature state these are superseded by simple entire and toothed erect rigid leaves on very short leafstalks. The flowers are produced in umbels, springing from the tips of the branches, and are followed by the black fruits. In the southern parts of the colony the stage with compound leaves is not developed.

In the mature state the horoeka forms a round-headed tree, with a trunk 12in. to 18in. in diameter, and affords a dense compact timber of great strength, but of moderate durability. It has been used for small piles, struts, fencing-posts, sleepers, &c., with good results.

66. Toothed Lancewood (*Pseudopanax ferox*), T. Kirk; "Forest Flora," Plates 24 to 26. Whangaroa North to Dunedin. Rare and local.

This is closely related to the preceding species, but is of smaller dimensions, seldom exceeding 40ft. in height; it exhibits the same curious deflexed leaves up to 16ft. in height, but never produces compound leaves. The deflexed leaves are excessively rigid and acutely toothed or lobed, so as to be capable of inflicting a serious wound if incautiously handled; the mature leaves are shorter than those of the preceding species, but thicker, narrower, and more rigid, while the flowering panicles are smaller. The wood is similar to the preceding, but of a deeper colour, and has been applied to the same purposes.

67. PAPAUMA (*Griselinia littoralis*), Raoul; "Forest Flora," Plate 42. Cape Colville Peninsula to Stewart Island.

A handsome spreading tree, 40ft. to 60ft. high, often with a gnarled and crooked trunk 2ft. to 4ft. in diameter, clothed with furrowed brown bark. The yellowish-green leaves are slightly wedge-shaped at base, and from 1in. to 3in. long; the flowers are arranged in small panicles, which spring from the axils of the leaves. The timber is dense, hard, of even grain, and slightly brittle; it splits easily, notwithstanding its distorted habit, and is of extreme durability. It is used for fencing-posts, boat-timber, sleepers, and other purposes for which small rigid timber of great durability is required.

68. PUKA (*Griselinia lucida*), Forster; "Forest Flora," Plate 41. North Cape to Nelson.

A shrub or small tree, sometimes 30ft. high, and 1ft. to 2ft. in diameter; very similar to the papauma, but the leaves are 4in. to 6in. long, and very glossy, the panicles also are much larger. The wood is similar to the preceding species, and is applied to the same purposes, so far as its smaller dimensions will allow.

69. TREE KARAMU (*Coprosma arborea*), T. Kirk; "Forest Flora," Plate 132. Mongonui to Lower Waikato.

A small round-headed tree, 20ft. to 30ft. high, with a trunk 6in. to 16in. in diameter; the leaves are of a brownish-green tint, about 2in. long, often purple or reddish beneath; the flowers are inconspicuous; the fruits at first white and translucent, ultimately black. The wood is yellow, straight-grained, compact, and very tough, but not durable when in contact with the ground. It is utilised for ornamental cabinet work and inlaying.

70. YELLOW-WOOD (*Croprosma linariifolia*), Hooker f.; "Forest Flora," Plate 95. Thames Valley to Southland.

A shrub or small tree, sometimes 25ft. high. The narrow linear-pointed leaves are about an inch in length; the flowers are inconspicuous; the fruit is a two-seeded berry, at first translucent, ultimately black. The wood is of a deep yellow colour, compact and tough; it is valued by the cabinetmaker for ornamental work, especially for inlaying.

71. TUPARI (*Olearia colensoi*), Hooker f.; "Forest Flora," Plate 102. East Cape to Stewart Island.

A bushy shrub or small tree, sometimes 40ft. high, with trunk 2ft. in diameter. The broadly oblong leaves are from 3in. to 8in. long, and from 2in. to 3in. broad, of thick texture, glossy above but white beneath, with toothed margins. The flower-heads are carried in erect racemes at the tips of the branches. The wood is firm, compact, and strong, with a satiny lustre and small silver grain, often streaked or clouded. It is suitable for many kinds of ornamental work.

72. AKEAKE (*Olearia traversii*), Hooker f.; "Forest Flora," Plate 34. Chatham Islands.

A small tree 25ft. to 35ft. high, with a trunk sometimes exceeding 3ft. in diameter at the base. The branchlets and underside of the entire leaves are white; it is the only large-leaved species with opposite leaves in the flora. The wood is of a dark-brown colour, dense, heavy, and compact, with a satiny lustre, and often beautifully mottled. It is of great strength and extreme durability. Except the kowhai, it affords the only durable timber on the Chatham Islands, where it is extensively used for fencing-posts, sleepers, &c., and is shipped to the mainland for ornamental cabinet work and inlaying.

73. HEKETARA (*Olearia cunninghamii*), Hooker f.; "Forest Flora," Plate 114. North Cape to Nelson.

A shrub or small tree, sometimes 25ft. high, with a trunk 1ft. in diameter or more. The ovate leaves are 2in. to 5in. long, and from 1in. to 2½in. broad, sparingly toothed. The small daisy like flowers are produced in large panicles near the tips of the branches. The wood is light-coloured, compact, and satiny, with handsome silver grain and small figure. It is used for ornamental cabinet work.

74. Akeake (*Olearia avicinniæfolia*), Hooker f.; "Forest Flora," Plate 111. Nelson to Stewart Island.

A shrub or small tree rarely exceeding 20ft. in height, with entire leaves 1½in. to 2in. long, and 1in. to 2in. wide, white beneath; flower-heads small, arranged in large panicles springing from the axils of the leaves. The wood is similar to that of the heketara, but more ornamental.

75. Neinei (*Dracophyllum latifolium*), Hooker f.; "Forest Flora," Plate 123. Auckland to Westland.

A small tree of singular beauty and striking habit, 10ft. to 25ft. high, trunk rarely more than 1ft. in diameter, with brown fibrous bark and distantly whorled branches, bearing at their tips a large cluster of recurved leaves, sometimes 1½ft. to 2ft. long and 1in. to 2in. broad at the base, tapering into long narrow drooping or rigid points. The red flowers are very small, crowded into a cylindrical much-branched panicle 6in. to 18in. long, springing from the apex of the branch. The wood is of a reddish colour, even and compact, prettily figured and often waved or clouded; it is rather brittle, but extremely durable, and is suitable for all kinds of ornamental work.

76. Mountain Neinei (*Dracophyllum traversii*), Hooker f.; Mountain passes chiefly in the Canterbury District.

Similar to the preceding species, but larger in all its parts except the flowers, which are smaller; the trunk often exceeds 2ft. in diameter, and the crowded branches are more numerous. The wood is similar to the preceding but of a paler colour and satiny lustre, also of greater strength and durability.

77. Inaka (*Dracophyllum longifolium*), R. Brown; "Forest Flora," Plate 109. Tararua Mountains to Southland; Stewart Island; Auckland and Campbell Islands.

A shrub or tree, sometimes 30ft. high, of singular habit; the strict erect grass-like leaves are from 3in. to 10in. long and confined to the upper parts of the branches, so that the plant presents a tufted appearance; the white flowers are arranged in dense racemes springing from the base of the tufts of leaves. The wood is of a whitish-brown hue, with a satiny lustre and oblique wavy markings which render it very ornamental; it is somewhat brittle but of great durability, and takes a high finish, which renders it valuable for all kinds of ornamental work, turnery, and inlaying.

78. Toro (*Myrsine salicina*), Heward; "Forest Flora," Plate 15. North Cape to Awatere and Westland.

A handsome tree, 30ft. to 40ft. high, with trunk 1ft. to 2ft. in diameter; branchlets leafy near the tips only; leaves 4in. to 6in. long, ½in. broad, narrow, oblong. Flowers arranged in small fascicles springing from the naked bark, and followed by the red fruits which are nearly ½in. long. The timber is of a deep red colour and beautifully marked, but is not durable when exposed. It is suitable for rafters, small beams, and all kinds of inside work, also for ornamental cabinet work and turnery, veneers, &c.

79. Mapau (*Myrsine australis*), A. de Candolle; "Forest Flora," Plate 16. North Cape to Stewart Island.

The mapau is also called matipau and tipau; it is an erect shrub or small tree 12ft. to 20ft. high, with leaves about 1½in. long, of a pale reddish brown; the small white flowers are produced in great abundance. The wood resembles that of the preceding species, but is of a paler colour, and, although of smaller dimensions, is more generally used for ornamental work. Both species afford excellent fire-wood.

80. **Tawaapou** (*Sideroxylon costatum*), Bentham and Hooker, f.; "Forest Flora," Plate 133. North Cape to the East Cape; in places near the sea.

A handsome tree, 20ft. to 60ft. high, with a trunk 1ft. to 3ft. in diameter; the branchlets and leafstalks contain a milky juice; the oblong leaves are from 2in. to 3in. long, 1in. to 2in. broad, entire; the flowers are inconspicuous, but the handsome fruit resembles a small plum, and contains two or three polished bony seeds, which were formerly used as necklaces by the chiefs. The wood is white with a fine compact wavy grain; although very tough it is easily worked, and takes a fine finish, but is not durable when exposed.

81. **Maire** (*Fusanus cunninghamii*), Bentham and Hooker f.; "Forest Flora," Plates 75, 76. Mongonui to Cape Palliser.

A small tree rarely exceeding 25ft. in height. The glossy leaves vary from narrow linear to broadly ovate, the extreme forms being sometimes found on the same branch; 1in. to 4in. long, ¼in. to 1½in. broad. Flowers of a lurid purplish green; fruit red, as large as a cherry. From the agreeable odour of the wood it is often termed New Zealand sandal-wood. When sawn it is of a deep brown colour, with dark streaks and markings; it is of even compact grain, dense, heavy, very strong and durable. It is often used for fencing purposes on account of its strength and durability, but is more highly valued for ornamental cabinet work, turnery, and inlaying.

82. **Ngaio** (*Myoporum lætum*), Banks and Solander; "Forest Flora," Plate 124. Kermadec Islands to Otago.

A shrub or small tree, sometimes upwards of 30ft. high, with a trunk 1ft. or more in diameter; leaves 1in. to 4in. long, ½in. to 1½in. broad, thickly dotted with pellucid glands; the white flowers form small clusters in the axils of the leaves. The wood is of a deep-brown colour with black streaks, which often form an irregular figure; it is dense, hard, and durable; it is used for fencing and other rustic purposes, also for ornamental cabinet work and inlaying.

83. **Toru** (*Persoonia toro*), A. Cunningham; "Forest Flora," Plate 74. Mongonui to Rotorua.

The toru rarely exceeds 50ft. in height, with a trunk 1ft. to 2ft. in diameter, and is often reduced to a shrub branched from the base; the leaves are very ornamental, 4in. to 8in. long and ½in. broad; the flowers are about ½in. long, and spring from the axils of the leaves. The wood is of a deep-red colour and beautifully marked, but rather brittle, and not durable when exposed. It is valued for ornamental cabinet work, and especially for inlaying.

84. **Milk-tree** (*Paratrophis microphyllus*), Bentham and Hooker f. North Cape to Otago.

A shrub or small tree, sometimes 30ft. high, with trunk 1ft. to 2ft. in diameter, clothed with smooth pale bark, which exudes a copious milky juice; the leaves are ½in. to 1in. long, and the flowers are inconspicuous. The wood is white, compact, and even in the grain, but rather soft and not durable.

85. **Makomako** (*Aristotelia racemosa*), Hooker f.; "Forest Flora," Plate 113. North Cape to Stewart Island.

The "wineberry," as it is commonly termed, is one of the most frequent plants in the colony, forming a shrub or tree 10ft. to 30ft. high, with distant slender branchlets clothed with red bark; the broadly-ovate pointed leaves are sharply toothed and almost membranous; the rosy flowers are produced in vast abundance in the early spring, and render the tree most attractive. The wood is white, straight in the grain, and often prettily figured, it is very light and of small durability, but is highly valued for the manufacture of charcoal for certain kinds of gunpowder.

86. Tumatukuru (*Discaria toumatou*), Raoul; "Forest Flora," Plate 136.
Port Waikato to Southland.

Usually a low shrub, but in mountain valleys attains the dignity of a small tree 20ft. high, and is easily recognised by the stout rigid spines which were formerly used for tattooing. The wood is strong, tough, and durable; before roads were generally opened in mountain districts it was often converted for building purposes, and was greatly valued.

Native Barks suitable for Tanning.

1. Tanekaha (*Phyllocladus trichomanoides*), Don. The bark contains 23 to 28 per cent. of tannin, which possesses special value as an organic mordant in the preparation of basils for kid gloves. It has realised from £30 to £50 per ton in London for this purpose, but is used chiefly in France. The tree is plentiful north of the Waikato. There can be little doubt that the phyllodia, if collected in the spring, would be of considerable value for tanning purposes, and in all probability the bark and phyllodia of *P. glauca* and *P. alpina* would answer the same purpose.

2. Towai (*Weinmannia silvicola*), Banks and Solander.

3. Tawhero (*W. racemosa*), Forster. The bark of these fine trees contains from 10 to 13 per cent. of tannin, and could be obtained in vast quantities, especially in the South Island.

4. Hinau (*Elæocarpus dentatus*), Vahl. This is of still higher value, as the bark contains 16 per cent. of tannin.

5. Pokaka (*Elæocarpus hookerianus*), Raoul. The bark contains 10 per cent. of tannin.

6. Maire tawhake (*Eugenia maire*), A. Cunningham. The bark yields 16·7 per cent. of tannin. The tree is almost restricted to the North Island.

7. Rata (*Metrosideros robusta*), A. Cunningham. The bark contains 18·5 per cent. of tannin, and can be obtained in large quantities.

8. Tooth-leaved Beech (*Fagus fusca*), Hooker f. The bark affords 7·6 per cent. of tannin.

9. Rimu (*Dacrydium cupressinum*), Solander. The bark contains 4·3 per cent. of tannin, and could be obtained in vast quantities at small cost by stripping the log before sawing.

10. Kohutuhutu (*Fuschsia excorticata*), Linné. The wood of this common tree contains 5·3 per cent. of tannin, but in all probability a larger yield could be extracted from the leaves and young shoots.

11. Tutu (*Coriaria ruscifolia*), Linné. The bark of this common shrub affords 16·8 per cent. of tannin, but is rather slim. There is, however, good reason to believe that a profitable extract could be obtained from the stout spring shoots and leaves.

KAURI RESIN.

By Professor T. Kirk, F.L.S.

Although a true resin, this is usually miscalled kauri-gum. It is the solidified turpentine of the kauri, and occurs in great abundance in a fossil condition in the northern part of the Auckland Provincial District, from the North Cape to Middle Waikato, and is dug up alike on the driest fernhills and the deepest swamps. The purest samples are found on the Cape Colville Peninsula. A large quantity is also obtained from the forks of living trees, but is considered of inferior quality and fetches a lower price. At the present time gum-digging employs nearly or quite 7,000 persons, including Maoris and aliens.

In the fossil state kauri resin occurs in larger or smaller lumps, from the size of a walnut to that of a man's head. Pieces have been found weighing upwards of 100lb. When scraped the best specimens are of a rich brown colour, varying greatly in depth of tint. Sometimes translucent or even transparent specimens are found, occasionally with leaves, seeds, or small insects enclosed. When obtained from swamps the resin is very dark coloured, or even almost black, and fetches a low price. Waikato resin is the darkest of all. Transparent or semi-transparent specimens fetch very high prices, being used as a substitute for amber in the manufacture of mouthpieces for cigar-holders, pipes, &c. The great bulk is used in the manufacture of oil varnishes, and in all countries where much varnish is made it holds the chief place in the market. It is exported chiefly to England and the United States of North America. In 1860 the export was only 1,046 tons, valued at £9 per ton; in 1894 it amounted to 8,338 tons, valued at £48 10s. per ton. The following statement, taken from the Customs returns, shows the quantity exported in each year from 1884 to 1894, with the total value and average per ton.

Year.	Quantity. Tons.	Total Value. £	Average per Ton. £	s.	d.
1884	6,393	342,151	53	10	4
1885	5,875¾	299,762	51	0	3
1886	4,920¾	257,653	52	7	1
1887	6,790	362,434	53	7	6
1888	8,482	380,933	44	18	0
1889	7,519	329,590	43	16	8
1890	7,438	378,563	50	17	11
1891	8,388	437,056	52	2	1
1892	8,705	517,678	59	9	4
1893	8,317	510,775	61	8	3
1894	8,338	404,567	48	10	5

The digger's equipment is of a simple character: a gum spear, that is, a light pointed iron rod fixed in a convenient handle, is used to test the ground; the gum is then dug out with a spade and carried home in a sack. In many cases the spear is dispensed with, and the entire area is dug over to such depth as the digger thinks likely to prove profitable. An old knife is used to scrape the gum, the scrapings being utilised in the manufacture of fire-kindlers.

Diggers are supposed to pay a license of 5s. per annum for permission to dig on Crown land, but this does not restrict them to any one spot; 10s. is charged for permission to dig in State forest reserves during the winter months only. Persons digging on private lands usually pay a license-fee of from £1 to £4 per annum, and are required to sell the resin to the owner or lessee of the field at a fair market price. In many cases the fee is not exacted; in others, a royalty of £1 per ton is charged. The total area of the gumfields is variously estimated at from 1,500,000 to 1,800,000 acres.

The number of persons now obtaining their living by gum-digging is not far short of 7,000, making all proper allowances for settlers who dig only during a small portion of the year, and for Maoris and children. A Commission appointed in 1893 to inquire into the state of the industry, gives the number of persons on the gumfields in May of that year as under: British, 4,303; settlers, 416; Maoris, 1,244; Austrians, 519; other foreigners, 415: total, 6,897.

The Commissioners remark: "The numerical totals of Maoris and settlers are greater than those above given, but they have been reduced to what we believe to be their equivalent in able-bodied men working full-time. These classes only work during half the year, and, in the case of the Maoris, women and children preponderate. We have reduced the number of settlers to one-half, and the Maoris to two-fifths." Gum-digging is a standing resource for the industrious unemployed, and has enabled Auckland to tide over periods of serious commercial depression with comparatively little difficulty. It has also been of vast benefit to hundreds of settlers with but small capital; not a few, who have attained a large measure of prosperity, look back gratefully to the help afforded by casual work on the gumfields.

In the Commissioners' report it is stated that the average earnings of the digger on leased or private land are £1 7s. per week, while the actual cost of living is from 10s. to 12s. As the digger has no difficulty in constructing a weatherproof hut, he is not called upon to pay house-rent; his firewood also is obtained free of cost, so that he clears from 15s. to 17s. per week above the cost of living. As a matter of fact, the industrious digger is in a more favourable position than the figures just given indicate, since the average earnings are unduly lowered by the presence of a number of old people, who have taken to the work, as well as of others who are content to live from hand to mouth and do as little hard work as possible. To men of a roving disposition, the free independent life has great attractions, and when coupled with the certainty of earning sufficient for a livelihood, there is little cause for wonder that so many prefer it to the somewhat monotonous existence of the ordinary settler. It would be difficult to name any other product which can be so easily obtained in such remunerative quantities without any previous outlay.

FISH AND FISHERIES.

By Sir JAMES HECTOR.

New Zealand fishes resemble those which are found on the coast between Madeira and the Bay of Biscay more than those caught about the shores of Great Britain. Of the sea-fishes that are used as food in New Zealand, we have among the constant residents on all parts of our coast the hapuku, tarakihi, trevally, moki, aua, rock-cod, wrasse, and patiki; and, while the snapper, mullet, and gurnet are met with only in the north, the trumpeter, butterfish, and red-cod are confined to the south. But, with the exception of the patiki, or flounder, and the red-cod, none of these represents fishes common even in the south of England; while from the more northern seas similar fishes are altogether absent.

In addition to those which remain throughout the year, a very large number of the fishes of the New Zealand coast, owing to its geographical position, are pelagic in their habits, and roam over a wide range of ocean, visiting these shores only irregularly in pursuit of food. Of the edible fishes of this class by far the largest number are visitors from warmer latitudes, such as the frostfish, barracouta, horse-mackerel, kingfish, dory, warehou, mackerel, and garfish; while, of more southern types, only the ling, hake, haddock, and a few others, rare and worthless as food, reach as far as the New Zealand coast in their migrations.

There is, however, no reason to complain of any want of useful variety in the New Zealand fishes as compared with those of Britain, for we find that out of 208 species of fishes enumerated as occurring in the British seas, including many which are extremely rare or merely occasional visitors, only 40 are considered to have a marketable value. In New Zealand, notwithstanding our very imperfect knowledge (especially of the gregarious tribes, which there is reason to believe inhabit shoals at some distance from land), out of 192 sea-fishes, some of which are only known from single specimens, we have nearly as many varieties used for food as are brought to market in the British Islands.

Of 142 species of fish enumerated as found in New Zealand, 67 species are, so far as we know, peculiar to New Zealand; 75 are common to the coasts of Australia or Tasmania; while 10 species are found in New Zealand and other places, but not in the Australian seas. New Zealand ichthyology thus presents a very distinct character, the thorough deciphering of which affords a wide field for future observation and scientific research.

The following is a list of the fishes which are chiefly met with in the market: Hapuku, kahawai, red-snapper, snapper, tarakihi, moki, trumpeter, frostfish, barracouta, horse-mackerel, trevally, kingfish, warehou, mackerel, rock-cod, gurnard, mullet, sea-mullet, butterfish, haddock, red-cod, whiting, ling, flounder or patiki, sole, garfish, grayling, smelt, kokopu, sardine, sprat, eel (tuna), black-eel, conger-eel, and silver-eel.

A considerable industry has sprung up of recent years in canning and preserving fish. The fish principally used for canning is the mullet, which is caught in large quantities in the Auckland district. The total value of fish exported (potted, preserved, dried, pickled, salted, and frozen) during last year amounted to £6,228.

Oysters exist in considerable quantities, the rock-oyster being found in the Auckland district, the deep-sea oyster principally in Foveaux Strait, where the process of dredging for them gives employment to a number of small vessels. 623,265 dozen of oysters, of the value of £2,676, were exported last year.

At the census of 1891 returns were received from 253 fishing industries, employing 667 persons. The boats used were 418 in number, and the tonnage 788; 1,340 nets were in use. For oyster-dredging, 13 boats and 22 dredges were employed.

The fur-seal is found on the islands near the coast of New Zealand, but may not now be killed.

The sperm-whale is found in the region of the ocean lying to the north-east of the colony. The harbours of New Zealand were formerly visited by whalers, for the purpose of refitting, carrying on shore-fishing, and barrelling their oil. The industry is not a large one at the present time, being only carried on by a few shore parties, the export for 1894 having been: Whale-oil—black, 4,150gal.; whalebone, 14cwt.

GOLD-MINING.

By Henry .A Gordon, F.G.S., Inspecting Engineer, Mines Department.

The history of the finding of gold in this colony was briefly sketched in the Year-books for 1893 and 1894, and need not, therefore, be repeated here, but a word may be said on recent developments in mining. Great changes have taken place since the early days, when a man wanted nothing but a pick and shovel, tin dish and cradle, to enable him to earn a livelihood on the diggings. The rich shallow soil has been to all appearances worked out, the ground is getting deeper, the inroads of water more troublesome, and greatly-improved appliances are needed in order to wash away the masses of drift that overlie the gold-bearing layers on the bottom.

The difficulty for many years experienced in working the beds of the larger rivers has been at last overcome by the use of dredging-machinery. On the Clutha River, where many dredges are at work, very few fail to pay interest on the capital invested in them. Dredging has not only been adopted for working river-beds, but has also been used to great advantage on river flats, which are known to contain large bodies of water, and cannot be profitably worked by any other means. So successful, indeed, has this method proved, that it seems likely to develop into a very considerable branch of the mining industry.

So numerous are rapid streams and rivers in New Zealand that water might easily be utilised to supply motive-power for mining machinery. It has been used at Skippers for many years to generate electricity by means of dynamos, the current being transmitted a distance of several miles over a high range for the purpose of driving a crushing battery. Great improvements have been made in the appliances since the method was first adopted, and at present some 67 per cent. of the power required to generate electricity is obtained in this way.

Skippers was the first place in the world where electricity was used to drive a crushing battery. The same force is employed to work a dredge on the Shotover River, some five miles above the sandhills. This dredge lies at present about four miles from the generating station, and the loss of power in transmission is found to be very small. Electricity has been adopted with equal success at the Brunner coal-mines near Greymouth for working the haulage and pumping machinery. Notwithstanding that a good deal of the generating-power is lost, the work of winding and pumping is done in this way more cheaply than steam could manage it, on account of the great distance the haulage plant has to be carried into the mine, and the position in which the pumps must of necessity be placed.

Every year improvements are being made in quartz-mining machinery and appliances, and in the different ways of opening out and working the mines.

THE CYANIDE PROCESS.

The most noteworthy improvement as yet introduced in the treatment of gold and silver-bearing ores is what is known as the cyanide process. This is particularly suitable where the gold is found in the ore in fine particles, but if the gold be at all coarse the cyanide will do no more than cleanse and brighten its surface and render it fitter for amalgamation. About one-half of the bullion produced in the North Island last year was obtained by this treatment. The ore is dry crushed, and the dust passed through a 30-mesh screen, which will usually render it fine enough. It is possible, however, that the cyanide will not dissolve all the coarser particles of gold that may come through the mesh. The pulverised ore is then emptied into a vat and covered with a cyanide solution. The gold in the ore is dissolved by the cyanide, and, in order to separate the two, the liquor is leached off and run into a trough containing zinc turnings, where the action of the zinc precipitates the gold in a fine powder. The tailings from the leaching-vats are run over tables covered with copper plates coated with quicksilver, and any particles of gold remaining in the ore are by this means arrested on the plates. It was at one time thought that dry-crushing would be a very expensive mode of reducing the ore, but the Waihi Company have proved the contrary. The cost of drying and crushing ready for the leaching process is under 6s. a ton, and more gold is obtained in this way than is yielded by wet crushing. It is found that in the latter process much of the precious metal is carried off with the water and does not remain in the tailings.

Cyanide plants are now being put up at very many of the mines, but the royalty charged by the Cassel Company is so prohibitive that many companies are unable to adopt the process. The late decision of the High Court of Appeal in England disallowing the right claimed by the Cassel Company will no doubt bring cyanide into more general use. Notwithstanding that this method of treatment has proved such a success, considerable improvements will yet be required to bring it to perfection. So long as the Cassel Company hold a patent for the use of every compound containing cyanogen, men of science are discouraged from experimenting in the treatment of ores with this chemical. Were this restriction removed they would at once apply themselves to the task of improving the method.

In recent experiments bromine and iodine have been used in conjunction with cyanide, with the twofold result, it is said, of hastening the dissolution of gold and of saving some of the loss in cyanide. Seaweed has also been tried, and is reported to have a similar effect. In all likelihood, therefore, the method of treatment will one day be rendered at once cheaper, speedier, and more thorough than it is at present.

Comparing the cyanide process with that formerly used, the manager of the Waihi Mine states that in place of getting 64 per cent. of gold and 31 per cent. of silver, his average is now about 91 per cent. gold and nearly 48 per cent. silver.

The two main obstacles in the way of the process are—first, the difficulty of reducing the base metals found in gold- and silver-bearing ores, of which copper and antimony are the most refractory; second, the trouble experienced in leaching ore in a slimy state, as the slime absorbs the cyanide solution, and is thereby enriched with gold. It then sets so close and compact that the gold solution cannot be filtered.

In the *Gazette* of 11th July, 1895, the Department of Industries and Commerce gave notice that a bonus of £1,000 would be paid under certain conditions for the erection of a plant and the manufacture in New Zealand of the first 200 tons of crude cyanide of potassium from colonial produce. The plant to be capable of turning out annually at least 70 tons, containing not less than 70 per cent. of *potassium cyanide.*

The total quantity of gold entered for export during each of the years ending 31st March, 1894, and 31st March, 1895, and the total quantity and value of the gold exported from the colony from the 1st January, 1857, to the 31st March, 1895, are shown hereunder:—

TABLE SHOWING THE QUANTITY AND VALUE OF GOLD ENTERED FOR EXPORTATION FROM NEW ZEALAND FOR THE YEARS ENDING THE 31ST MARCH, 1894 AND 1895, AND THE TOTAL QUANTITY AND VALUE FROM JANUARY, 1857, TO 31ST MARCH, 1895.

District.	Year ending 31st March, 1895.		Year ending 31st March, 1894.		Increase or Decrease for Year ending 31st March, 1895.		Total Quantity and Value from January, 1857, to 31st March, 1895.	
	Quantity.	Value.	Quantity.	Value.	Increase.	Decrease.		
	Oz.	£	Oz.	£	Oz.	Oz.	Oz.	£
Auckland	58,029	228,059	52,426	215,012	5,603	...	1,847,980	6,959,604
Wellington	...	...	...	...	...	...	188	706
Marlboro'	1,911	7,626	2,262	9,037	...	351	81,029	315,281
Nelson ...	1,633	6,059	2,179	8,141	...	546	246,615	975,602
West Coast	85,015	339,731	98,930	395,728	...	13,915	5,517,080	21,921,556
Canterbury	...	...	...	...	...	...	48	192
Otago ...	76,393	308,070	84,905	342,302	...	8,512	5,130,985	20,283,482
Totals ...	222,981	889,545	240,702	970,220	...	17,721	12,823,925	50,456,423

It will be seen from the above table that there was last year a considerable falling-off in the yield of gold. This is due to the depression that prevailed in quartz-mining—more especially in the Thames and Reefton districts—during the early part of the year. Of late, however, a reaction has set in, owing to the discovery of new lodes at greater depths than have hitherto been worked, and the readiness shown by foreign capitalists to develop them. The Thames neighbourhood had been languishing for some time. To keep the mines free from water was a task of the greatest difficulty; a heavy outlay was required to drain them even to a comparatively shallow depth, and there seemed no hope of getting more powerful and modern pumping-plant which might render it possible to work at a lower level. But recently an English company entered into an agreement to put up pumping-machinery, and to sink a shaft a depth of 2,000ft. for the purpose of properly testing the deep levels. In the Reefton neighbourhood the finding of new and payable lodes at greater depths than have hitherto been worked has given a much-needed stimulus to quartz-mining, and no doubt capital will be forthcoming to test the deep-levels in mines that have long been idle. In the back country, near the Maruia, north-east of Reefton, an immense deposit of quartz-conglomerate has been discovered, similar to that which is at the present time giving large returns in South Africa. On the whole, the outlook for quartz-mining is brighter now than it has been for many years past.

RESULTS OF QUARTZ-MINING IN NORTH ISLAND FOR YEAR ENDED 31ST MARCH, 1895.

County.	1894-95.													
	Number of Men employed.	Quartz crushed.			Mullock crushed.	Gold obtained.		Tailings treated.	Gold obtained.		Estimated value.		
		Tons.	cwt.	lb.		Oz.	dwt.	Tons.	Oz.	dwt.	£	s.	d.
Coromandel	263	8,935	9	100	...	20,332	2	6,518	2,300	6	62,996	0	0
Thames ...	598	25,971	8	73	11,938	20,865	0	10,555	1,944	13	59,340	0	0
Ohinemuri	543	31,220	17	30	...	92,931	14	19,837	17,696	7	137,699	0	0
Piako ...	11	871	0	0	...	572	6	250	55	8	1.711	0	0
Totals ...	1,415	66,998	15	91	11,938	134,701	2	37,160	21,996	14	261,746	0	0

RESULTS OF QUARTZ-MINING IN MIDDLE ISLAND FOR YEAR ENDED 31ST MARCH, 1895.

District.	Number of Tons of Quartz crushed.	Gold obtained.	Estimated Value.		
		Oz.	£	s.	d.
Marlborough	25	14·0	54	12	0
Nelson	3,554	657·0	2,562	6	0
West Coast	38,370	18,360·0	71,604	0	0
Otago	13,390	5,713·5	22,282	12	0
Totals	55,339	24,744·5	96,503	10	0

The falling-off in the yield of gold from alluvial diggings is in great measure due to the extreme dryness of last season. Miners engaged in this class of workings require a plentiful supply of water for sluicing; hence more attention is now being given to the construction of reservoirs, for which, however, capital is required. Any moneys spent in this way will certainly be repaid with interest.

NOTE.—Since the above was written a very great demand for mining properties has sprung up, and a large amount of foreign capital is now being invested in both islands with the view of developing the mines and carrying on exhaustive operations.

SECTION III.

RAILWAYS IN NEW ZEALAND.

The history and progress of railways in New Zealand was specially described in the Year-book of 1894, as was also the line partly built by the New Zealand Midland Railway Company. The following paper deals with the latest Government railway statistics, and the changes in management caused by the legislation of last session. A short article on the Wellington and Manawatu line is now published for the first time.

New Zealand Government Railways.

Financial Year ending 31st March, 1895.

By the passing of "The Government Railways Act, 1894," Parliament effected an entire change in the administration of New Zealand lines. The Board of Commissioners, which had held the control since January, 1889, ceased to exist on 31st December, 1894, and a new Ministerial portfolio of "Railways" was established.

On the 31st March, 1895, there were 1,993 miles of railway open for traffic, producing a gross annual revenue of £1,150,852, the net revenue being £418,692, equal to a dividend of £2 14s. 6d. per cent. on the total cost (£15,352,613) of all opened lines to that date. The earnings on some of the lines ranged as high as £6 17s. 9d., and even £7 4s. 10d. per cent.

Following are the comparisons of the traffic, revenue, and expenses for the past fifteen years:—

Year.	Miles.	Revenue.	Expenditure.	Expenditure per Cent. of Revenue.	Tonnage.	Parcels Horses, and Dogs.	Cattle, Sheep, and Pigs.	Passengers.	Season-tickets.
		£	£			No.	No.	No.	No.
1880–81	1,277	836,454	521,957	62·40	1,377,783	286,865	300,704	2,849,561	6,499
1881–82	1,319	892,026	523,099	58·64	1,437,714	316,611	343,751	2,911,477	7,207
1882–83	1,358	953,347	592,821	62·18	1,564,793	341,186	477,075	3,283,378	8,621
1883–84	1,396	961,304	655,990	68·24	1,700,040	359,896	686,287	3,272,644	9,036
1884–85	1,477	1,045,712	690,026	65·99	1,749,856	347,425	729,528	3,232,886	8,999
1885–86	1,613	1,047,419	690,340	65·91	1,823,767	349,428	858,662	3,362,266	10,717
1886–87	1,727	998,768	699,072	69·99	1,747,754	372,397	942,017	3,426,403	11,821
1887–88	1,758	994,843	687,328	69·09	1,735,762	399,109	940,209	3,451,850	11,518
1888–89	1,777	997,615	647,045	64·86	1,920,431	399,056	919,392	3,132,803	11,817
1889–90	1,809	1,095,570	682,787	62·32	2,073,955	405,838	1,068,575	3,376,459	12,311
1890–91	1,842	1,121,701	700,703	62·47	2,086,011	413,074	1,348,364	3,433,629	13,881
1891–92	1,869	1,115,432	706,517	63·34	2,066,791	430,216	1,153,501	3,555,764	16,341
1892–93	1,886	1,181,522	732,142	61·97	2,193,330	460,383	1,393,457	3,759,044	16,504
1893–94	1,948	1,172,793	735,359	62·70	2,060,645	486,787	1,433,679	3,972,701	17,226
1894–95	1,993	1,150,852	732,160	63·62	2,048,391	479,683	1,604,103	3,905,578	28,623

And also of the traffic in local products for the past ten years :—

Year.	Wool.	Timber.	Grain.	Minerals.	Horses and Cattle.	Sheep and Pigs.
	Tons.	Tons.	Tons.	Tons.	Number.	Number.
1885–86 ..	74,778	202,572	413,847	669,081	46,152	822,028
1886–87 ..	82,963	175,581	345,254	719,579	46,600	904,582
1887–88 ..	84,147	158,024	358,021	700,140	42,067	907,443
1888–89 ..	78,203	160,399	447,027	786,690	37,804	889,966
1889–90 ..	91,214	172,814	498,199	797,117	41,058	1,036,875
1890–91 ..	87,701	153,078	528,683	828,079	44,999	1,313,155
1891–92 ..	85,888	170,521	442,277	873,899	47,618	1,117,253
1892–93 ..	96,842	169,910	523,637	884,031	46,590	1,359,860
1893–94 ..	101,340	183,192	411,191	864,538	51,573	1,394,456
1894–95 ..	103,328	198,578	388,556	857,917	52,075	1,563,213

The receipts from passenger traffic were £385,149.

The average revenue per mile of railway was £584 15s. 1d., and the average expenditure £372 0s. 2d., equal to 7s. 1¾d. and 4s. 6½d. per train-mile respectively.

The total number of miles travelled by trains was 3,221,620, and the following table shows the traffic, ton-mileage, and rate of working for the four chief sections of the system for three years :—

TRAFFIC TON-MILEAGE, AND RATE OF WORKING, FOR FOUR CHIEF SECTIONS.

Section.	1892-93.		1893-94.		1894-95.	
	Ton-Mileage.	Rate of Working, in Pence Per Ton-Mile.	Ton-Mileage.	Rate of Working, in Pence per Ton-Mile.	Ton-Mileage.	Rate of Working, in Pence per Ton-Mile.
Auckland ..	10,146,797	1·80	10,508,134	1·80	11,004,853	1·84
Napier-Taranaki	13,205,014	2·15	13,581,490	2·23	13,893,809	2·27
Wellington ..	5,816,437	2·21	5,999,468	2·02	5,992,105	2·19
Hurunui-Bluff ..	51,699,231	2·04	51,221,958	1·92	49,674,134	2·01
Totals ..	80,867,479	2·04	81,311,050	1·97	80,564,901	2·04

In the conveyance of the traffic there are employed 269 locomotives of various classes, 498 carriages, and 8,468 wagons. The total number of officers and men employed is about 4,950.

During the three months ending the 31st March, 1895, considerable concessions were made in charges. Specially low fares were granted for school excursions, giving a large number of children and their parents an opportunity of travelling to the towns from the country districts, and to the country districts from the towns. Up to the 31st March, 1895, 41,466 children and 23,673 adults had availed themselves of the excursions.

A very large reduction—about 20 per cent.—was made in the rates for the conveyance of sheep. This reduction, in addition to being a great boon to the farmers, has resulted in a large increase in the number of sheep carried, many owners who previously sent their sheep by road now sending them by rail. During the two months ending the 31st March, 1895, 476,096 sheep were carried, as against 427,168 for the corresponding period of last year—an increase of 48,928.

A valuable concession has also been made in the charge for conveyance of road-metal for local bodies. This varies according to distance, the maximum reduction being 50 per cent., or half the rate previously charged. Local bodies appreciate the reduction, and are largely using the railways for conveyance of their material.

In order to enable small lots of fruit grown in the colony to be distributed by rail at little cost, specially low rates for such consignments have been scheduled.

Besides the reductions referred to above, which have a general application, others have been made to meet local requirements, and to secure to the railway traffic which would otherwise be sent by other means.

The above figures do not include the traffic on the Wellington–Manawatu or New Zealand Midland Railways, as both these lines belong to private companies. The Wellington–Manawatu Company's line is eighty-four miles in length, extending from Wellington to Longburn, and carries a heavy traffic. The New Zealand Midland Company's Railway extends from Brunner (the terminal station of the Government Railway from Greymouth to Brunner) to Jackson, thirty-two miles, and from Stillwater (a station on the Brunner–Jackson line) to Reefton, thirty-eight miles. The traffic on this company's line is lighter than on the Wellington–Manawatu Railway.

THE WELLINGTON AND MANAWATU RAILWAY COMPANY (LIMITED).

The Wellington and Manawatu Railway is eighty-four miles in length, its southern terminus being the City of Wellington. It extends along the west coast of the province, connecting with the Government Railway system at Longburn, the junction being four miles from the important Town of Palmerston North.

The railway was constructed under "The Railways Construction and Land Act, 1881." The public works policy initiated in 1871 had no provision for the very necessary work of connecting the Port of Wellington with the extensive country in the north of the province; and it was not till 1878 that the Grey Government, after careful surveys between Wellington and Foxton, started to make a line to fill up the gap. A change of Government, however, occurred; funds were short; and, although £30,000 had been spent, the work was discontinued.

In 1880 a Royal Commission was appointed to report on railway construction throughout the colony, with the result that an adverse report was made on this particular line. The citizens of Wellington were indignant, and a public meeting was held on the 30th September, 1880, at which about thirty gentlemen were present. Mr. W. T. L. Travers, as convener, explained why they had been invited to meet; and, after the matter had been fully discussed, a resolution was adopted, "That a committee be appointed to make the necessary inquiries and report to another meeting." Deputations waited on the Government, when the Premier stated there was no money to carry on the work, suggesting that the citizens should themselves take the matter up. He said the Government would make concessions to a company if formed. A vigorous canvas of the city was made by Mr. John Plimmer and Mr. James Wallace, and the result was most encouraging. A company was formed in 1881, with a capital of £500,000, afterwards increased to £850,000. Of this amount £170,000 is paid up; and debentures have been issued for £680,000, bearing interest at 5 per cent. The Railways Construction and Land Act was passed the same year, and a contract was entered into between the Government and the company in March, 1882. The Government, in addition to the land-grant under the Act, handed over to the company the works which had been commenced. The first contract for construction was begun in September, 1882, and the work was pushed on so vigorously that the line was finished and opened throughout before the end of 1886.

On account of the rough and broken country adjacent to Wellington the line follows the coast for about sixty miles. There is a belt of flat land for the remaining twenty-four miles, and the railway-line passes through the centre of this belt, but is only twenty miles from the sea at its northern terminus. On leaving Wellington at sea-level, there is a long grade of from 1 in 36 to 1 in 40, with 8-chain curves, for about six miles to a saddle near Johnsonville, the line here reaching its highest point—viz., 520ft. above sea-level; then there is a falling grade of 1 in 56 for about six miles to sea-level at Porirua. For six miles more the line skirts the Porirua Harbour, passing Plimmerton, a beautiful and increasingly popular watering place with a fine beach. The railway now rises for about three miles, the grade being 1 in 56 to Pukerua Saddle, and again falls for four miles, the grade being 1 in 66 to Paikakariki, twenty-six miles from Wellington. In descending to Paikakariki the line runs almost along the cliffs close to the sea-shore, and a most magnificent view of the ocean and the Island of Kapiti can be obtained. From Paikakariki to Longburn the ruling grade is 1 in 100.

From Wellington to Paikakariki there are some very heavy works, including no less than thirteen tunnels, besides numerous rock-cuttings and deep fillings. From Paikakariki to Longburn the works are much lighter, though crossing the swamps at the northern end of the railway was expensive. There are four large bridges on the railway—viz., the Belmont Viaduct, the Paremata Bridge over an arm of Porirua Harbour, the Otaki Bridge over the Otaki River, and the bridge over the Manawatu River. The permanent-way is chiefly 53lb. steel rails laid with 7ft. by 8in. by 5in. heart of totara sleepers, but about three miles of 65lb. steel rails have lately been laid on the Wellington and Paikakariki grades.

The line is substantially built, being well equipped with engines, carriages, and other rolling-stock. The company has fourteen locomotives, five English tank-, three English tender-, and six American tender-engines, two of the latter being four-cylinder compounds. The company has introduced the first compound engines into the colony. They are doing capital work, and show a marked saving in fuel when compared with single-cylinder engines. Owing to their simple and substantial construction a heavy expenditure in repairs is not anticipated.

The telephone is quite a feature in the equipment of the line, and has been greatly improved by the Manager, Mr. J. E. Fulton. In addition to the iron wire another wire of hard-drawn copper has been erected, and a switch has been designed instantaneously connecting each telephone with the copper-wire during conversation, and then at once removing it and its accompanying resistance from the line. Mr. Fulton has also experimented with a telephone placed in the guard's van. From it a single conductor can be hooked over the wire anywhere along the line, and communication established. All the guards' vans are now so equipped, and the telephone is frequently used, being specially serviceable in case of delay or breakdown.

The carriages are all of the American type, some imported, and others built in the New Zealand Railway Workshops, and are comfortable and convenient for passengers. There is a dining-car (the only one in the colony) on the through trains, where passengers can get meals, and this is much appreciated by the public.

The result of the company's operations has proved the correctness of the opinions held by the gentlemen who first took the formation of the railway in hand. The construction opened up an entirely new country between Paikakariki and Longburn, which had previously been a *terra incognita*. Leaving Paikakariki, the railway enters a pastoral country unsurpassed in New Zealand, and runs through land which it has brought into cultivation, and past townships which it has created, the more important of which are Paraparaumu, Manukau, Ohau, Levin, and Shannon. The greater portion of the country all the way to Longburn was formerly under bush, a considerable area of it having been allocated to the company under its contract with the Government. For the last ten years the bushman and the farmer have been busy, and throughout are to be seen comfortable farms and smiling homesteads. To the right of the railway the land rises, and is somewhat broken, but is first-class sheep country. The indomitable settler is climbing the sides of the hills, falling, burning, and sowing; and what was lately forest is now transformed into valuable farms.

The land allocated was about 215,000 acres, and over 30,000 acres have been purchased. Of this large area 90,000 acres have been sold as townships, and in farms varying from 20 up to 2,000 acres. Probably not less than three thousand people are settled on lands sold by the company. The land sold has realised £153,000, of which amount £96,000 has been paid, and £57,000 is still due to the company. A considerable portion of the land still held is poor hilly pastoral land; a second portion is of a better character, well timbered, but is difficult of access. The balance lies chiefly near the Manawatu River and the Makerua Swamp. Some of that bordering on the swamp is first-class land that will sell readily at any time, but the directors are retaining it till certain drainage-works are further advanced. The area of land affected by these works is about 15,000 acres.

For the year ending 28th February, 1888, which was the first complete year the railway was open, the total traffic revenue was £47,547; and for the year ending 28th February, 1895, it has almost doubled, amounting to £91,779. The working-expenses last year absorbed only 47 per cent. of the receipts, being a much less percentage than is usual on colonial railways. The passenger revenue was nearly one-half of the total receipts, the goods traffic consisting chiefly of live and dead meat, with wool, timber, and general merchandise incidental to settlement in a fine pastoral country.

The company became dividend-paying in 1891, when the dividend was 3½ per cent. For the two succeeding years 5 per cent. was paid, while for the last two years the dividend has been 6 per cent.

The head office of the company is in Wellington, with agents in London; and the present directors are—Mr. T. G. Macarthy, J.P., Chairman, with Messrs. Kirkcaldie, James Smith, D. Anderson, C. B. Izard, John Plimmer, and D. J. Nathan. Secretary, Mr. W. M. Hannay; Manager, Mr. J. E. Fulton, M.I.C.E.; Resident Engineer, Mr. J. Marchbanks.

GRAVING DOCKS AND PATENT SLIPS.

Vessels visiting New Zealand, and requiring docking or repairs, will find ample accommodation at the principal ports of the colony.

There are in New Zealand four graving-docks; two of these are situated in Auckland, one at Lyttelton, and one at Port Chalmers.

AUCKLAND DOCKS.

The dimensions of the docks at Auckland are as follow:—

	Calliope Dock.	Auckland Dock.
Length over all	525 feet.	312 feet.
Length on floor	500 "	300 "
Breadth over all	110 "	65 "
Breadth on floor	40 "	42 "
Breadth at entrance	80 "	43 "
Depth of water on sill at high water (ordinary spring tides) ..	33 "	13½ "

LYTTELTON DOCK AND PATENT SLIP.

The graving-dock at Lyttelton also is capable of docking a first-class ironclad, or any of the large ocean-steamers now running to the colony; its general dimensions are:—

Length over all	503 feet.
Length on floor	450 "
Breadth over all	82 "
Breadth on floor	46 "
Breadth at entrance	62 "
Breadth where ship's bilge would be	54 "
Depth of water on sill at high-water springs	23 "

There are electric lights, one on each side of the graving-dock.

There is a workshop alongside the dock, and several other places within a short distance, where repairs and heavy foundry-work can be done.

Alongside the dock is a patent slip, with a cradle 150ft. in length, suitable for vessels of 300 tons.

PORT CHALMERS DOCK.

The docks at Auckland and Lyttelton are the property of the respective Harbour Boards, but that at Port Chalmers is vested in the Otago Dock Trust, a body entirely distinct from the Otago Harbour Board. Vessels of large size can be taken in the Otago Dock, as the following measurements will show:—

Length over all	335 feet.
Length on the floor	328 „
Breadth over all	68 „
Breadth on floor	41 „
Breadth where ship's bilge will be	43 „
Breadth at dock gates	50 „
Depth of water on sill at high-water ordinary tides ..	17½ „

Connected with the Otago Dock are a large machine-shop, steam-hammer, and forge, with all the appliances necessary for performing any work that may be required by vessels visiting the port. An 80-ton sheer-legs has also recently been erected for heavy lifts.

There is also a patent slip, used for taking up small vessels.

WELLINGTON PATENT SLIP.

The Port of Wellington has no dock; but there is a well-equipped patent slip at Evans Bay, on which vessels of 2,000 tons can be safely hauled up. This slip is the property of a private company, and is in no way connected with the Harbour Board. It is 1,070ft. long, with a cradle 260ft. in length. There is a depth of 32ft. at high water at the outer end of the slip. A dolphin and buoys are laid down for swinging ships in Evans Bay.

The company has convenient workshops, which contain machinery necessary for effecting all ordinary repairs to vessels using the slip.

TIMARU SLIP.

The Timaru slip is capable of taking up a vessel of 200 tons.

NELSON CRADLE.

The Anchor Steamship Company's cradle can take up a vessel of 150 tons.

LIGHTHOUSES.

The coasts of New Zealand are, considering their extent, fairly well lighted, but there are still many places where lights are wanted. Additions to the existing lights are made from time to time as funds are available.

The lighthouse towers are built of either iron, stone, or timber, the latter material having been selected partly for cheapness and partly from fear of earthquakes; but the use of it for this purpose is now abandoned.

There are twenty-seven coastal lights in New Zealand—namely, eight of the first order, thirteen of the second order, three of the third order, and three of smaller orders.

The apparatus used to concentrate the rays of the light are all, with one exception, of the system known as "dioptric," where the optical agent is wholly glass. The exception is Dog Island, a "catadioptric" light, where the optical agents are glass and metallic reflectors.

The forms of the apparatus used are all of the most approved type, and of the latest pattern known at the time of their erection.

The lamps used are of various kinds; in some of them the oil flows into the wicks by gravity; these are called "fountain" lamps; in others, the oil is supplied by small pumps driven by clockwork; these are known as "mechanical" lamps; whilst in others, called "pressure" lamps, the oil is forced up by a piston.

The light itself is produced by the consumption of lighthouse parafin—a mineral oil distilled from shale—in lamps with burners having concentric wicks, the number of wicks increasing with the power of the apparatus, the maximum number being five, as used in Cuvier Island and Stephens Island Lighthouses. The burners are those known as Captain Doty's patent.

The following are the kinds of lights used in New Zealand:—

1. The "fixed" light, in which the light is always seen.

2. The "revolving" light, in which the light, at equal periods, gradually comes into view, attains its full power, and disappears.

3. The "flashing" light, showing flashes, either single or in groups, at short, regular intervals.

There has been no special difficulty in the erection of lighthouses in New Zealand, apart from the trouble caused by indifferent landings. There are no lighthouses built in the sea, such as the well-known Eddystone or Bell Rock. That on The Brothers is the only one which it is considered necessary to keep as a rock-station: that is, the keepers are relieved from time to time, three being always at the station and one on shore.

The cost of the erection of the lighthouses is given by the Marine Department as upwards of £167,651 (the Ponui Passage Lighthouse, having been built by the Provincial Government of Auckland, the cost is not given). The annual consumption of oil is about 13,000 gallons; and the cost of maintenance, irrespective of the cost of maintaining the lighthouse steamer, is about £12,000 a year.

Besides the coastal lighthouses, there are harbour-lights at most of the ports of the colony for the guidance of vessels into and out of the ports.

The following table shows the names of the lighthouses, indicating also their situation, the order of apparatus, description, period (in seconds) and colour of the lights, and of what material the respective towers are built:—

Name of Lighthouse.	Order of Apparatus.	Description.	Period of Revolving Light, in	Colour of Light.	Tower built of.
	Dioptric.		Seconds.		
Cape Maria van Diemen	1st order ..	Revolving	60	White	Timber.
	..	Fixed ..	..	Red, to show over Columbia Reef	
Moko Hinou ..	1st „ ..	Flashing	10	White	Stone.
Tiri-Tiri (Auckland)	2nd „ ..	Fixed ..	..	White, with red arc over Flat Rock	Iron.
Ponui Passage ..	5th „ ..	„ ..	..	White and red ..	Timber.
Cuvier Island ..	1st „ ..	Revolving	30	White	Iron.
Portland Island	2nd „ ..	„	30	„ ..	Timber.
	..	Fixed ..	..	Red, to show over Bull Rock	
Pencarrow Head	2nd „ ..	„ ..	..	White	Iron.
Cape Egmont	2nd „ ..	„ ..	..	„	„
Manukau Head	3rd „ ..	„ ..	..	„	Timber.
Kaipara Head .	2nd „ ..	Flashing	10	„	„
Brothers (in Cook Strait)	2nd „ ..	„	10	„ ..	„
	..	Fixed ..	..	Red, to show over Cook Rock	
Cape Campbell	2nd „ ..	Revolving	60	White	„
Godley Head (Lyttelton)	2nd „ ..	Fixed ..	..	„	Stone.
Akaroa Head ..	2nd „ ..	Flashing	10	„	Timber.
Moeraki ..	3rd „ ..	Fixed ..	..	„	„
Taiaroa Head ..	3rd „ ..	„ ..	..	Red	Stone.
Cape Saunders ..	2nd „ ..	Revolving	60	White	Timber.
Nugget Point ..	1st „ ..	Fixed ..	..	„	Stone.
Waipapapa Point	2nd „ ..	Flashing	10	„	Timber.
	Catadioptric.				
Dog Island ..	1st order ..	Revolving	30	„	Stone.
	Dioptric.				
Centre Island ..	1st order ..	Fixed ..	..	White, with red arcs over inshore dangers ..	Timber.
Puysegur Point	1st „ ..	Flashing	10	White	„
Cape Foulwind	2nd „ ..	Revolving	30	„	„
Farewell Spit ..	2nd „ ..	„	60	White, with red arc over Spit end	„
Nelson ..	4th „ ..	Fixed ..	..	White, with red arc to mark limit of anchorage	Iron.
French Pass ..	6th „ ..	„ ..	..	Red and white, with white light on beacon ..	
Stephens Island	1st „	Group flashing	30	White	„

DÉPÔTS FOR SHIPWRECKED MARINERS.

As eleven of the crew of the barque "Spirit of the Dawn," which was wrecked on Antipodes Island on the 4th September, 1893, remained on the island for eighty-eight days without becoming aware of the existence of the dépôt of provisions and clothing for castaways which is established there, attention may usefully be drawn to the fact that such dépôts are maintained by the New Zealand Government on that island, and on the Auckland, Campbell, Bounty, Kermadec, and Snares Islands.

The following are the positions of the dépôts:—

Auckland Islands.—A dépôt is placed on the south side of Erebus Cove, Port Ross, and another in Camp Cove, Carnley Harbour. A third has been placed at the head of Norman Inlet. One boat is placed on the north-west end of Adams Island, another on Enderby Island, and another on Rose Island.

Campbell Island.—A dépôt is erected in Tucker Cove, Perseverance Harbour, and a boat has been placed at the head of that harbour.

Antipodes Islands.—A dépôt is placed abreast the anchorage on the north-east side of the principal island.

Bounty Islands.—There is a dépôt on the principal island.

Snares Island.—A dépôt has been established on this island in Boat Harbour.

Kermadec Islands.—A dépôt is established on Macaulay Island, near Lava Cascade, on the north-east end of the island, and another on Curtis Island, at the head of Macdonald Cove, on the north-western end of the island.

Finger-posts to indicate the direction of the dépôts have also been put up.

The Government steamer visits the Auckland, Campbell, Antipodes, Bounty, and Snares Islands twice a year, and the Kermadec Islands once a year.

UNION STEAMSHIP COMPANY OF NEW ZEALAND (LIMITED).

One of the most successful enterprises to which this colony has given birth is the Union Steamship Company of New Zealand (Limited). Its history is, to a great extent, a reflex of the later history of the colony—as the one has grown, the other has expanded. Thirty-three years ago a small paddle steamer was found sufficient for the requirements of Otago, and continued so until the opening of the Otago goldfields in 1862, when the sudden increase of trade resulting therefrom necessitated the employment of additional tonnage;

and, one after another, five steamers were purchased, and connections formed with other ports in the Middle Island. In course of time, as trade grew, it became apparent that a bold step must be taken if it were to be retained in the hands of those under whom it had grown, and this feeling resulted in the formation, in 1875, of the Union Steamship Company of New Zealand (Limited), with a powerful proprietary and an influential Board of directors.

The trade of the company was at first confined to the coastal services of the colony, with an occasional extension to Sydney; the intercolonial service being carried on by the fleet of Messrs. McMeckan, Blackwood, and Co., of Melbourne. In 1878, however, the Union Company purchased the steamers and interests of that firm; and in this way the entire intercolonial and the bulk of the New Zealand coastal trade passed into their hands. Energetic steps were taken to develop the intercolonial and coastal trades, and, with a boldness which was at the time considered temerity, orders were sent Home to build several new steamers of the latest design.

The courage of the directors was rewarded by seeing their fleet fully occupied, and, in pursuance of their policy to keep well ahead of the colony's requirements, they continued to order steamer after steamer, each more luxuriously fitted than its predecessor. Every scientific improvement, either in the machinery or in the fitting of vessels, was brought into requisition, so that from the modest beginning already noted, the fleet of the Union Steamship Company has grown to be the largest and most powerful in the Southern Hemisphere.

It is unnecessary to record how, year after year, the fleet and trade of the company have grown to their present dimensions; it need only be stated that at the present time the fleet engaged in regular employment numbers fifty steamers, of an aggregate tonnage of 55,000 tons.

The connections of the company have extended with their fleet. In 1885, in conjunction with the Oceanic Steamship Company of San Francisco, they took up the mail-service between the colonies and America, and have retained it ever since. In 1891 they purchased the plant and business of the Tasmanian Steam Navigation Company, which for many years had carried on the trade between Tasmania and Australia. Besides the New Zealand coastal service and the intercolonial services between New Zealand, Tasmania, and Australia, the company run regular services from New Zealand and Australia to Fiji, Tonga, Samoa, and other South Sea Islands, and send vessels to Calcutta periodically.

The company's interests are so closely interwoven with those of the colony that it is regarded as almost a national institution. It gives employment to a large number of people, and its operations necessitate the circulation of a considerable sum of money. It employs, afloat and ashore, over 2,600 persons, and expends in wages and other disbursements in the colonies over £800,000 per annum.

The directors take a special interest in the welfare of the company's employés. The crews enjoy peculiar comforts and privileges. A benefit society has been established in their interest, to which the company contributes an annual subsidy; the company further pays a considerable proportion of the annual premiums of their officers' life insurances.

Although the progress of the company is largely the result of the prosperity of the colony—and the state of trade of the latter has a barometric effect on the company's operations—it could not have attained and held its present position without wise heads and good judgment to direct its affairs. It has always been fortunate in numbering amongst its directors men who hold leading positions in the commercial community, and whose energy and judgment are generally recognised. More especially, however, is the pre-eminence of the company due to the conduct of its affairs by the two leading members of the Board—the Hon. George McLean, M.L.C., its Chairman, and Mr. James Mills, the Managing Director of the company since its formation. The name of Mr. John Darling, one of the London directors, designer of the boats and Resident Marine Superintendent in England, is also closely associated with its history.

The Head Office of the company is in Dunedin, and it possesses thirty branches and agencies throughout the colonies, and an office and local Board in London. The Inspector is Mr. E. P. Houghton, and Secretary, Mr. T. W. Whitson.

The following are the names of the company's vessels, with their gross registered tonnage: *Monowai*, 3,433; *Mararoa*, 2,465; *Tekapo*, 2,439; *Rotokino*, 2,004; *Tarawera*, 2,003; *Waihora*, 2,003; *Talune*, 2,000; *Hauroto*, 1,988; *Wakatipu*, 1,944; *Manapouri*, 1,783; *Rotomahana*, 1,727; *Oonah*, 1,700; *Taieri*, 1,668; *Te Anau*, 1,652; *Taviuni*, 1,490; *Pukaki*, 1,443; *Corinna*, 1,280; *Flora*, 1,273; *Pateena*, 1,212; *Ovalau*, 1,200; *Poherua*, 1,175; *Arawata*, 1,098; *Ringarooma*, 1,096; *Upolu*, 1,000; *Penguin*, 935; *Takapuna*, 930; *Rotorua*, 926; *Janet Nicoll*, 779; *Ohau*, 740; *Taupo*, 737; *Rosamond*, 721; *Wainui*, 640; *Dingadee*, 640; *Omapere*, 601; *Moreton*, 581; *Mawhera*, 554; *Grafton*, 548; *Brunner*, 540; *Wareatea*, 460; *Australia*, 459; *Orowaiti*, 453; *Kawatiri*, 453; *Mahinapua*, 423; *Southern Cross*, 263; *Oreti*, 219; *Moa*, 188; *Manawatu*, 183; *Beautiful Star*, 177; *Maori*, 174; *Waihi*, 92. Total tonnage, 55,455. The indicated horse-power ranges from 100 to 2,800.

[illegible] LIMITED).

[illegible] to this company for its [illegible] within easier [illegible] of the world, [illegible] passenger and cargo [illegible]

[illegible] commenced its operations [illegible] a monthly line of sailing [illegible] to New Zealand, and back [illegible] steamer was made by des- [illegible] tons register, [illegible] The success of [illegible] steamers, and [illegible] to replace those [illegible] by the company specially [illegible] monthly passenger steamship [illegible] cargo steamers, in [illegible] in the colony for steamer- [illegible]

[illegible] New Zealand Shipping Company's [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	Passenger capacity.		
				First.	Second.	Third.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36	300
[illegible]	[illegible]	[illegible]	[illegible]	76	[illegible]	280
[illegible]	[illegible]	[illegible]	[illegible]	76	58	280
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36	250
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44	250
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36	250
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	..	500
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	..	500
[illegible]	[illegible]	[illegible]	[illegible]	..	..	..
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	..	..
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	..	..
[illegible]						
[illegible]	[illegible]			[illegible]	..	..
[illegible]	[illegible]		[illegible]		..	..
[illegible]	[illegible]		[illegible]		..	..
[illegible]	[illegible]			..	..	..
[illegible]	[illegible]				..	..
[illegible]	[illegible]			..	..	..
[illegible]	[illegible]			..	..	..
[illegible]	[illegible]			..	..	..
[illegible]	[illegible]			..	..	..
[illegible]						

[illegible] the company charters several steamers [illegible] for homeward loading. The passenger-steamers, which are fitted with every modern requisite, leave London and New Zealand every fourth Thursday. The outward passage is *viâ* Plymouth, Teneriffe, Capetown, and Hobart, occupying from forty to forty-four days; and homewards *viâ* Monte Video, Rio de Janeiro, Teneriffe, and Plymouth, from thirty-eight to forty-two days. At the time this article is being written the steamers are unable to call at Rio de Janeiro owing to quarantine regulations, which it is thought will be rescinded shortly.

The route adopted by the company's steamers is very interesting and healthy. On the homeward passage some of the steamers go through the Magellan Straits, which adds materially to the pleasure of the voyage, these straits being famous for the grandeur of their scenery. Monte Video has only recently been included as a port of call, but it is a most valuable addition from a passenger point of view.

The head office for Australasia is at Christchurch, New Zealand, and the general manager for the colonies is Mr. Isaac Gibbs. There are branch offices and agents in New Zealand at Lyttelton, Auckland, Wellington, Palmerston North, Dunedin, Napier, Timaru, Ashburton, Rangiora, Rakaia, Oamaru, Invercargill, Gisborne, New Plymouth, Wanganui, Nelson, Blenheim, Greymouth, and Hokitika; also agents at Plymouth, Capetown, Hobart, Melbourne, Sydney, Adelaide, Newcastle, Brisbane, Maryborough, Rockhampton, Townsville, Monte Video, Buenos Ayres, Rio de Janeiro, Madeira, and Teneriffe.

SHAW-SAVILL AND ALBION COMPANY (LIMITED).

Early in the sixties, the firm of Shaw-Savill and Co. (then trading under the name of Willis, Gann, and Co.) established a line to this colony, and some time later the Albion Company, of Glasgow, followed suit. These two firms subsequently amalgamated under the title of Shaw-Savill and Albion Company (Limited), and now possess a large fleet of magnificent, full-powered steamships trading from New Zealand to London, *viâ* Rio de Janeiro, Teneriffe, and Plymouth, and outwards *viâ* Madeira, Cape of Good Hope, and Hobart, on alternate Thursdays, doing either trip in about 42 days.

The mail-steamer *Gothic*, 7,730 tons, can accommodate 140 saloon passengers; the *Ionic*, 4,753 tons, *Tainui*, 5,031 tons, *Doric*, 4,744 tons, *Arawa*, 5,026 tons, and *Coptic*, 4,448 tons register, can each carry about 60 saloon and 60 second-class passengers.

Like the sister firm (the New Zealand Shipping Company), the Shaw-Savill and Albion Company have greatly aided the growth of the frozen-meat trade by providing first-class steamships fitted with refrigerating-chambers, and thus meeting the requirements of the colony in this respect.

The following table shows the estimated cargo capacities of this company's steamships for the carriage of frozen meat, wool, dairy-produce, &c. :—

Steamer.	Frozen-meat Capacity.	Wool Capacity (Dumped).	Cool-chamber Capacity.
	Sheep.	Bales.	Tons Measurement.
Doric	31,800	4,000	110
Arawa	30,500	1,800	160
Coptic	30,500	3,500	100
Ionic	32,500	4,000	125
Tainui	31,150	1,800	135
Mamari	41,000	3,500	360
Matatua	38,000	2,400	218
Maori	70,000	7,000	As required.
Rangatira	45,000	5,000	230
Pakeha	45,000	5,000	200
Gothic	70,000	6,000	As required.
Tokomaru	84,000	8,000	„
Aotea	72,000	8,000	„

In addition to the mail- and cargo-steamers, the Shaw-Savill and Albion Company has a fleet of thirty-three first-class steel sailing-ships. These vessels are despatched at regular intervals, carrying goods from and to all ports in New Zealand. Occasionally the sailing-ships take a few passengers who may prefer the longer voyage of about three months.

TABLES OF DISTANCES BY SEA.

HOMEWARDS AND OUTWARDS: DIRECT ROUTE.

Homewards (viâ Cape Horn).

	Miles.
Wellington to Cape Horn	4,400
„ Rio de Janeiro	6,750
„ Teneriffe	10,240
„ Madeira	10,445
„ Plymouth	11,655
„ Gravesend	11,946

Outwards (viâ Capetown).

	Miles.
Gravesend to Plymouth	291
„ Madeira	1,501
„ Teneriffe	1,706
„ Capetown	6,291
„ Hobart	11,951
„ Port Chalmers	13,013

NEW ZEALAND.

—	Auckland.	Russell.	Tauranga.	Gisborne.	Napier.	Welling-ton.	New Ply-mouth.	Picton.	Nelson.	Westport.	Grey-mouth.	Hokitika.	Lyttelton.	Port Chal-mers.	Bluff.
	Miles.	Miles.	Miles	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Auckland to ..	—	128	133	301*	387	564*	135	617	665	825	888	908	739	929	1,061
Russell „ ..	128	—	261	429	515	692	263	745	793	953	1,016	1,036	867	1,057	1,189
Tauranga „ ..	133	261	—	206	292	495	268	548	596	756	819	839	670	860	992
Gisborne „ ..	301*	429	206	—	86	289	436	342	390	550	613	633	464	654	786
Napier „ ..	387	515	292	86	—	203	375†	256	304	464	527	547	378	568	700
Wellington „ ..	564*	692	495	289	203	—	172	53	101	261	324	344	175	332*	464
New Plymouth „ ..	135	263	268	436	375†	172	—	225	148*	433	496	516	347	537	669
Picton „ ..	617	745	548	342	256	53	225	—	85	245	308	328	228	418	550
Nelson „ ..	665	793	596	390	304	101	148*	85	—	160	223	243	276	466	598
Westport „ ..	825	953	756	550	464	261	433	245	160	—	63	83	436	626	758
Greymouth „ ..	888	1,016	819	613	527	324	496	308	223	63	—	20	499	689	821
Hokitika „ ..	908	1,036	839	633	547	344	516	328	243	83	20	—	519	709	841
Lyttelton „ ..	739	867	670	464	378	175	347	228	276	436	499	519	—	190	322
Port Chalmers „ ..	929	1,057	860	654	568	332*	537	418	466	626	689	709	190	—	132
Bluff „ ..	1,061	1,189	992	786	700	464	669	550	598	758	821	841	322	132	—
Auckland „ ..	..	..	..	..	..	314‡	..	..	..	..	..	..	..	..	..

* Direct. † *Viâ* Wellington. ‡ *Viâ* Manukau.

INTERCOLONIAL.

	Miles.		Miles.		Miles.
Bluff to Melbourne ..	1,200	Bluff to Hobart ..	930	Auckland to Sydney ..	1,277
Hokitika „ „ ..	1,266	Hobart „ Melbourne ..	451	Wellington „ „ ..	1,200
Hokitika „ Newcastle ..	1,085	Russell „ Sydney ..	1,172	Wellington „ Melbourne ..	1,471
Melbourne „ „ ..	620				

Auckland to Levuka (Fiji) ..	1,167 miles.	Auckland to Tonga	1,120 miles.
Auckland to Rarotonga ..	1,650 miles.	Auckland to Tahiti	2,276 miles.

Melbourne to Suva (Fiji) . .. 2,227 miles.

TRANSPACIFIC.

Auckland to Samoa .. 1,680 miles. | Samoa to Honolulu .. 2,134 miles. | Honolulu to San Francisco .. 2,083 miles.

TABLE OF DISTANCES BY RAIL.

NEW ZEALAND.

OPUA-KAWAKAWA.

	Miles.
Opua to Kawakawa	8

WHANGAREI-HIKURANGI.

Opau to—	
Whangarei	3
Kamo	6
Hikurangi	14
Waro	15

DARGAVILLE-OPANAKE.

Dargaville to Opanake	17

AUCKLAND-KAUKAPAKAPA.

Auckland to—	
Waitakerei	20
Helensville	38
Kaukapakapa	44
Kanohi	46

AUCKLAND-ONEHUNGA.

Auckland to Onehunga	8

AUCKLAND TO MERCER, TE AWAMUTU, TE KUITI, ROTORUA.

Auckland to—	
Papakura	20
Drury	22
Mercer	43
Huntly	65
Frankton Junction	85
Hamilton East	87
Ruakura Junction	89
Cambridge	101
Morrinsville	103
Okoroire	131
Putaruru Junction	140
Rotorua	171
Lichfield	145
Te Aroha	115
Te Awamutu	100
Otorohanga	115
Te Kuiti (Mokau)	126

SPIT AND NAPIER-PALMERSTON NORTH.

Spit to Napier	3
Napier to—	
Hastings	13
Te Aute	27
Waipukurau	44
Ormondville	66
Dannevirke	79
Woodville	95
Palmerston North	112
Longburn Junction	116
Foxton	136

NEW PLYMOUTH-WANGANUI.

	Miles.
New Plymouth to—	
Sentry Hill Junction	8
Waitara	11
Inglewood	17
Stratford	30
Hawera	48
Patea	66
Waverley	73
Aramoho Junction	104
Wanganui	107

WANGANUI-LONGBURN.

Wanganui to Aramoho Junction	3
Aramoho Junction to—	
Marton	30
Marton Junction	32
Hunterville	48
Mangaonoho	55
Halcombe	41
Feilding	49
Palmerston North	60
Longburn Junction	64

LONGBURN-WELLINGTON.

Longburn to—	
Levin	25
Otaki	38
Waikanae	47
Paikakariki	57
Plimmerton	66
Porirua	71
Johnsonville	78
Wellington	84

WELLINGTON-EKETAHUNA.

Te Aro to—	
Wellington	1
Petone	8
Lower Hutt	9
Upper Hutt	21
Kaitoke	28
Summit	36
Featherston	51
Woodside Junction	56
Greytown	59
Carterton	63
Masterton	72
Eketahuna	94

PICTON-BLENHEIM.

Picton to Blenheim	18

Nelson–Belgrove.

Port to—	Miles.
Nelson	1
Richmond	8
Brightwater	13
Foxhill	21
Belgrove	22

Greymouth–Hokitika.

Greymouth to—	
Kumara	11
Hokitika	24

Greymouth–Brunner.

Greymouth to Brunner	8

Greymouth–Reefton.

Greymouth to—	
Brunner	8
Ahaura	22
Totara Flat	27
Reefton	47

Greymouth-Jackson.

Greymouth to Jackson	40

Christchurch–Culverden.

Culverden (Hurunui) to—	
Waikari	20
Waipara	29
Amberley	36
Rangiora	49
Kaiapoi	56
Papanui	65
Addington Junction	68
Christchurch	69

Christchurch–Lyttelton.

Christchurch to Lyttelton	7

Christchurch–Oxford.

Christchurch to—	
Kaiapoi	14
Bennett's Junction	35
Oxford East	40
Oxford West	41

Christchurch–Southbridge–Little River.

Christchurch to—	
Lincoln Junction	14
Little River	36
Ellesmere	21
Southbridge	31

Christchurch–Springfield–Whitecliffs.

Christchurch to—	Miles.
Rolleston Junction	14
Darfield Junction	30
Whitecliffs	42
Racecourse Hill	34
Sheffield	38
Springfield	44
Oxford West	62

Christchurch–Dunedin.

Christchurch to—	
Rakaia	36
Methven	58
Ashburton	53
Tinwald Junction	55
Springburn	83
Rangitata	75
Temuka	89
Washdyke Junction	97
Pleasant Point	106
Fairlie	132
Timaru	100
Studholme Junction	124
Waimate	129
Waihao Downs	142
Waitaki North	138
Pukeuri Junction	147
Duntroon	169
Kurow	183
Hakateramea	184
Oamaru	152
Windsor Junction	165
Ngapara	169
Tokarahi	177
Hampden	174
Palmerston	189
Dunback	198
Waikouaiti	199
Seacliff	206
Port Chalmers	222
Dunedin	230

Dunedin–Invercargill.

Dunedin to—	
Caversham	2
Wingatua Junction	9
Hindon	25
Middlemarch	49
Hyde	65
Mosgiel Junction	10
Mosgiel Town	11
North Taieri	13
Outram	19
Greytown	15
Waihola	26
Milton	36
Lawrence	50

Dunedin to—	Miles.
Stirling	50
Kaitangata	55
Balclutha	53
Glenomaru	65
Clinton	74
Waipahi Junction	84
Tapanui	97
Kelso	100
Heriot	103
Gore Junction	100
Riversdale	118
Lumsden Junction	137
Kingston	174
Mossburn	148
Mataura	107
Edendale	116
Wyndham	120
Glenham	126
Invercargill	139

INVERCARGILL–BLUFF.

	Miles.
Invercargill to Bluff	17

INVERCARGILL–MOKOTUA.

Invercargill to Mokotua	13

INVERCARGILL–KINGSTON.

Invercargill to—	
Makarewa Junction	8
Thornbury Junction	20
Otautau	33
Nightcaps	45
Riverton	26
Orepuke	43
Winton	19
Dipton	37
Lumsden	50
Nokomai	73
Kingston	87

SECTION IV.

CLIMATE, TEMPERATURE, AND RAINFALL.

By Sir James Hector, K.C.M.G., M.D., F.R.S.

Meteorological Observations.

Meteorological observations have been taken ever since the founding of the colony, though at first they were of an irregular character, and made only with the view of comparing the climate of New Zealand with that of other countries. From 1853 meteorological reports appear regularly appended to the Registrar-General's statistics; but it was not until 1859 that systematic observations were undertaken by a Government department. In that year nine stations, equipped with carefully-compared instruments, were established at Mongonui, Auckland, Napier, New Plymouth, and Wellington, in the North Island; Nelson, Christchurch, Dunedin, and Invercargill, in the Middle Island; and some years later two more were added—one at Hokitika, and the other at the Bealey.

Subsequently, several new stations were established, making in all fifteen, from which monthly returns were sent to the head office in Wellington. Since then the number of chief stations has been reduced to nine, including one at the Chatham Islands, but the number of secondary stations at which rainfall and weather is recorded has been increased to one hundred and fifteen in number.

Temperature.

In this respect the climate resembles that of Great Britain, but is more equable, the extremes of daily temperature varying throughout the year by an average of 20° only. London is 7° colder than the North and 4° colder than the South Island of New Zealand. The mean annual temperature of the North Island is 57°, and of the South Island 52°, that of London and New York being 51°.

The mean annual temperature of the different seasons for the whole colony is: In spring, 55°; in summer, 63°; in autumn, 57°; and in winter, 48°.

The following are the means for the two warmest and the two coldest months in the several localities, with their differences:—

Auckland.	New Plymouth.	Wellington.
69·6	64·7	64·6
53·1	49·3	47·8
16·5	15·4	16·8

Nelson.	Christchurch.	Dunedin.
63·6	65·2	58·0
45·9	44·3	43·2
17·7	20·9	14·8

The average difference between the mean temperature of the warmest and coldest months in New Zealand is 17°; at Rome it is 27°; at Montpellier, 33°; at Milan, 38°; and in Jersey, 22°.

Meteorological observations were taken in 1894, at 9.30 a.m. daily, at eight different stations—namely, at Auckland, in the northern part of the North Island; at Te Aroha and Rotorua, in the hot-springs district; at New Plymouth on the extreme west and at Wellington at the extreme south of the North Island; at Lincoln, in the Canterbury District, on the east coast, and at Hokitika on the west coast, both about midway in the Middle Island; and at Dunedin, in the southern district of the Middle Island. The differences between the several stations in situation—Auckland, New Plymouth, Wellington, Hokitika, and Dunedin being seaports, the other three inland towns,—in elevation, and in latitude, involve considerable differences of temperature.

The mean temperature of air in the shade for the year 1894, at each station, and the maximum and minimum temperature recorded are given:—

Station.	1894.			
	Mean Temp. in Shade.	Max Temp. recorded.	Min. Temp. recorded.	Extreme Range.
	° Fahr	° Fahr	° Fahr.	° Fahr.
Auckland	59·7	82·0	35·0	47·0
Te Aroha	58·9	88·0	27·0	61·0
Rotorua	54·7	87·0	25·0	62·0
New Plymouth	57·3	82·0	31·0	51·0
Wellington	56·4	80·0	33·3	46·7
Lincoln (Canterbury)	53·1	94·2	24·8	69·4
Hokitika	54·2	84·5	28·5	56·0
Dunedin	51·0	87·0	30·0	57·0
Chatham Islands	52·6	70·0	33·0	37·0

It will be observed that, although the mean temperature for the year was highest at Auckland, the highest temperature reached was at Lincoln, in the South Island.

Comparison between Climate on East and West Coasts.

The climate on the west coast is more equable than on the east, the difference between the average summer and winter temperatures in the north-west portion of the North Island being nearly four degrees less than in the south-east, while, as between the corresponding portions of the South Island, the differences vary by some seven degrees. This is due to the action of cyclonic disturbances of the atmosphere, the centres of which in most cases pass south of New Zealand in their eastward progress, thus causing westerly winds to impinge on the west coast. The extent of their influence can be better appreciated by comparing the annual fluctuations of temperature on the opposite sea-boards of the South Island. Thus, at Christchurch, on the east, the range of temperature is greater by seven degrees than at Hokitika, on the west.

The average temperatures ascertained are given below :—

COMPARATIVE TEMPERATURES OF NEW ZEALAND.

I.—GENERAL ABSTRACT.

Stations.	S. Lat.	Long. E. from Greenwich.	No. of Years of Observation.	Year.	Winter.	Spring.	Summer.	Autumn.	Difference of the Warmest and Coldest Months.	Averages of Yearly Extremes.		Yearly Fluctuation.
										Max.	Min.	
	° '	° '		° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah
North Island.												
Mongonui ...	35 1	173 28	10	59·90	53·06	58·28	66·56	61·52	15·12	89·10	31·82	57·28
Auckland ...	36 50	174 51	20	59·54	52·34	57·56	66·92	61·16	16·02	88·52	33·26	55·26
New Plymouth ...	39 4	174 5	14	57·56	50·90	55·94	64·58	58·82	15·66	86·90	30·02	56·88
Napier	39 29	176 55	10	57·56	49·10	57·74	66·20	57·02	19·26	90·00	32·10	57·90
Wellington ...	41 16	174 47	14	55·58	48·74	54·50	62·24	56·66	14·76	78·44	32·18	46·26
Wanganui ...	39 56	175 6	3	55·90	48·71	53·31	63·31	57·12	16·70	86·00	29·00	57·00
South Island.												
Nelson	41 16	173 19	11	54·86	46·58	54·50	62·78	55·76	17·10	82·04	27·32	54·72
Hokitika ...	42 42	170 59	10	52·34	45·50	51·62	59·18	53·06	14·76	74·12	28·22	45·90
Bealey * ...	43 2	171 31	9	46·76	37·40	46·04	54·86	48·56	18·18	78·08	12·38	65·70
Christchurch ...	43 32	172 39	12	52·88	43·52	53·24	61·52	53·60	18·72	88·16	25·16	63·00
Dunedin † ...	45 52	170 31	17	50·72	43·52	50·54	57·20	51·80	15·30	84·74	29·84	54·90
Invercargill ...	46 17	168 20	14	50·36	42·26	51·26	58·10	50·00	16·92	83·84	20·12	63·72
Queenstown ‡ ...	45 2	165 39	3	51·01	40·01	50·92	64·02	52·31	21·25	84·60	23·21	61·39

II.—DAILY RANGE OF TEMPERATURE.

Difference of the Mean Daily Extremes.

Stations.	Jan.	Feb.	Mar.	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.	° Fah.
North Island.													
Mongonui ...	16·74	15·30	19·08	18·18	16·92	15·30	15·66	16·92	16·02	14·58	16·74	15·48	16·38
Auckland ...	19·80	20·88	19·80	19·08	16·92	15·30	15·48	16·74	15·84	16·56	18·00	18·90	17·82
New Plymouth	21·60	20·16	21·42	19·44	15·84	15·30	14·40	16·56	18·00	16·74	18·54	19·62	18·18
Napier ...	21·60	21·78	17·82	15·12	14·94	13·86	15·30	15·12	18·00	18·18	19·08	18·72	17·46
Wellington ...	13·50	12·42	12·42	11·70	11·16	10·62	10·62	11·52	11·88	12·24	13·50	13·32	12·06
South Island.													
Nelson ...	23·40	20·70	21·24	17·10	17·82	19·08	19·08	19·62	21·06	21·42	22·14	20·34	20·16
Hokitika ...	11·16	13·32	12·60	12·78	13·86	14·58	13·68	14·76	15·66	12·24	11·52	11·34	13·14
Christchurch ...	18·36	16·56	17·46	17·10	16·38	14·94	16·56	16·02	16·20	18·54	19·08	17·10	17·10
Dunedin ...	15·66	15·66	15·12	13·68	11·52	10·44	10·62	12·06	13·32	13·68	15·30	16·20	13·68
Invercargill ...	21·78	22·50	22·68	18·00	16·02	17·64	16·92	19·44	22·32	21·06	21·06	22·50	20·16

The next table shows the shade temperatures for each month in New Zealand and other British colonies. The figures given are the means of four years. (H signifies highest, and L lowest) :—

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* Height above sea, 2,104ft. † Height above sea, 550ft. ‡ Height above sea, 1,070ft.

British Possessions (Stations and Height in Feet above Sea Level where known).	Jan.		Feb.		March.		April.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Year.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.
New Zealand																										
Wellington (140)	78	45	78	47	76	44	70	43	66	38	62	34	59	33	62	34	65	37	60	41	74	33	75	44	78	33
Queensland—																										
Brisbane (130) ...	92	64	93	63	91	61	85	54	89	50	76	42	75	39	78	41	85	46	91	50	94	57	97	61	97	39
New South Wales																										
Sydney (155) ...	92	59	89	58	84	59	79	51	72	48	67	44	63	39	70	42	77	45	88	48	87	54	94	57	94	39
Victoria—																										
Melbourne (91)	101	48	99	47	99	45	86	40	74	37	64	37	62	32	68	34	74	34	81	40	94	44	96	45	101	32
South Australia																										
Adelaide (140)	108	49	106	50	100	48	89	45	78	40	67	38	65	36	74	39	79	41	86	41	96	45	101	48	108	36
Western Australia																										
Perth (47)	107	50	102	53	98	52	96	57	81	40	70	38	70	37	73	38	80	42	83	42	93	48	100	51	107	37
Tasmania—																										
Hobart (160)	91	45	94	45	93	44	75	38	71	37	61	34	59	33	66	33	72	35	77	35	92	40	86	43	94	33
Natal—																										
Durban (150)	99	63	95	61	94	60	94	58	89	52	86	49	88	48	91	49	96	50	91	53	97	57	98	50	99	49
Cape Town—																										
Royal Observatory (37)	94	54	90	51	92	49	86	45	80	42	76	39	74	37	76	37	83	39	86	44	89	48	90	52	94	37
Hongkong—																										
Observatory (110)	73	47	78	46	77	49	84	58	89	68	91	73	91	74	91	74	92	70	90	66	82	55	79	49	91	46
Straits Settlements																										
Singapore (30)	88	70	90	70	91	71	91	73	90	73	90	72	90	72	89	72	89	71	89	71	89	71	89	70	91	70
Mauritius—																										
Royal Alfred Observatory (179) ...	84	60	84	71	84	70	82	70	80	62	77	60	75	59	75	50	77	62	80	62	82	66	84	68	84	59
Canada—																										
Toronto (350)	47	-3	45	-3	51	6	71	22	78	31	86	44	88	46	89	47	82	41	71	27	56	13	45	-1	89	-3
Montreal (187)	45	-14	42	-13	44	0	69	24	81	32	87	43	88	50	86	50	81	39	70	27	59	11	43	-11	88	-13
St. John (*N.B.*) (116)	49	-7	46	-7	47	4	62	22	69	33	81	42	79	49	77	48	73	37	60	26	56	16	49	-3	81	-7
Halifax (122)	50	-1	46	-3	50	10	63	22	73	32	83	30	84	48	84	49	80	36	69	29	60	21	51	3	84	-3
Charlottetown, Prince Edward Island (38)	47	-6	43	-9	47	5	60	20	70	31	77	30	80	49	79	49	75	39	66	30	58	19	47	1	80	-9
Winnipeg, Manitoba (764) ...	34	-37	32	-37	49	-25	76	8	82	20	90	35	87	40	91	34	86	30	73	[illegible]	53	-16	39	-20	91	-37
Victoria, British Columbia (10) ...	51	14	55	22	60	[illegible]	67	29	73	38	76	30	79	43	76	41	71	38	64	35	55	30	51	23	79	14
St. John's, Newfoundland (125) ...	48	-6	50	-8	50	[illegible]	61	15	71	27	76	33	81	41	79	42	78	33	65	24	62	19	51	9	81	-8
Barbados—																										
Joes River (430)	81	67	81	67	83	69	84	70	84	71	85	72	84	70	85	70	85	71	85	71	84	70	83	69	85	67
Bahamas—																										
Military Hospital	77	63	70	68	79	67	84	69	89	72	88	73	80	78	80	73	87	75	86	77	82	70	77	67	89	63
Jamaica—																										
Kingston (60) ..	91	63	90	63	90	62	91	68	91	70	92	71	95	71	93	73	93	70	98	60	91	67	90	63	95	62
Trinidad (130) ..	86	67	87	68	88	69	88	70	90	70	86	71	86	71	90	70	90	70	88	70	87	70	85	69	89	67

RAINFALL.

The rainfall varies much, both at the different stations and from year to year at the same station. The following shows the rainfall for the last four years at the chief stations, and for the last year at three new stations:—

Station.	1891.		1892.		1893.		1894.	
	Rainfall.	Number of Days on which Rain fell.	Rainfall.	Number of Days on which Rain fell.	Rainfall.	Number of Days on which Rain fell.	Rainfall.	Number of Days on which Rain fell.
	Inches.		Inches.		Inches.		Inches.	
Auckland	36·04	149	41·33	177	53·81	203	41·11	180
Te Aroha	43·27	119	54·08	144	61·91	161	52·94	136
Rotorua	48·94	132	66·23	166	93·72	168	51·31	139
N. Pl'mth.	..	..	..	..	..	..	63·12	153
Welling'n	35·12	166	67·65	184	53·03	186	51·00	175
Lincoln	20·57	98	27·88	124	22·05	115	29·78	170
Hokitika	..	..	..	..	..	..	116·06	181
Dunedin	32·73	151	47·55	160	54·49	184	39·43	190
Chatham Islands	..	..	..	..	..	..	35·01	190

The annual average rainfall at the chief stations in New Zealand since 1864 has been:—

NORTH ISLAND.		SOUTH ISLAND.	
	Inches.		Inches.
Mongonui	56·44	Nelson	59·56
Auckland	42·33	Christchurch	26·11
Napier	37·30	Hokitika	119·66
Taranaki	58·38	Dunedin	36·38
Wanganui	37·30	Queenstown	31·68
Wellington	50·80	Invercargill	45·18

The greatest rainfall for any one of these years was 154·45in., at Hokitika, in 1878; and the smallest was 13·54in., at Christchurch, in the same year.

During the year 1894 the rainfall was recorded at 115 stations, 72 in the North Island, 42 in the South Island, and 1 at Chatham Islands.

The rainfall during 1894 was remarkably deficient, as may be seen by the following comparison.

	1893.	1894.
	Inches.	Inches.
For the whole colony	68·75	53·17
For North Island	79·20	54·08
For South Island	57·27	52·26
Chatham Islands..	38·49	30·78

But a more useful comparison is obtained by taking the averages for the different climatic aspects of New Zealand:—

	Average Rainfall.	
	1893.	1894.
	Inches.	Inches.
NORTH ISLAND.		
N.E. aspect, from North Cape to East Cape	72·14	55·29
W. aspect, from Cape Maria to New Plymouth	128·73	71·29
S.W. aspect, from Cape Egmont to Cape Terawhiti	52·11	37·20
S.E. aspect, from East Cape to Pencarrow	68·83	48·56
SOUTH ISLAND.		
N. aspect, from Stephen Island to Cape Koamoru	49·46	38·31
W. aspect, from Cape Farewell to Puysegur Point	128·16	*86·76
E. aspect, Cape Koamoru to Tairoa Head	36·90	32·04
S. aspect, Cape Saunders to Windsor Point..	35·24	31·94

Averaging these aspects, we find that when the coast-line faces N. and N.E. the rainfall is 53·8in.; when W. and N.W., 102·98in.; when S. and S.W., 39·12in.; and when E. and S.E., 45·33in.

The greatest fall in 1894 was at Puysegur Point, 163·16, and the least at Rangitata, Canterbury, 18·44.

I.—PROPORTIONS OF RAIN IN NEW ZEALAND AT DIFFERENT SEASONS.

Stations.	Rainfall.					Probability of Rain.					Mean Max. in 24 Hours.
	Winter.	Spring.	Summer.	Autumn.	Total for Year.	Winter.	Spring.	Summer.	Autumn.	Year.	
	Percentage.				In.						
North Island—											
Mongonui	36	24	23	17	58·132	0·66	0·50	0·33	0·39	0·47	3·500
Auckland	32	25	19	24	47·008	0·61	0·52	0·33	0·41	0·47	3·358
New Plymouth	29	27	20	23	59·442	0·52	0·51	0·35	0·38	0·44	2·590
Napier	39	15	35	11	36·004	0·26	0·22	0·24	0·17	0·22	...
Wellington	29	24	24	22	51·542	0·51	0·43	0·37	0·40	0·43	2·610
South Island—											
Nelson	27	26	29	17	61·599	0·27	0·25	0·22	0·18	0·23	7·189
Hokitika	24	28	28	20	111·653	0·52	0·61	0·57	0·48	0·54	3·532
Bealey	22	28	31	18	105·340	0·53	0·61	0·56	0·47	0 54	3·512
Christchurch	31	21	25	23	25·536	0·36	0·33	0·28	0·24	0·30	1·622
Dunedin	23	23	28	26	31·682	0·51	0·55	0·58	0·54	0·54	2·079
Invercargill	26	23	26	26	49·732	0·47	0·47	0·40	0·49	0·46	1·130

II.—AVERAGE MONTHLY RAINFALL IN INCHES.

Stations.	Jan.	Feb.	Mar.	April	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.
North Island—	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Mongonui ...	3·209	7·787	1·492	2·882	5·461	8·319	6·598	6·241	5·831	3·701	4·272	2·339
Auckland	2·071	3·272	3·150	3·402	4·771	5·721	5·279	4·331	4·331	3·520	3·752	3·409
New Plymouth ...	3·221	3·908	2·579	3·520	7·720	5·914	6·299	5·177	5·252	5·969	4·858	4·921
Napier	3·571	3·650	1·130	1·358	1·532	3·402	3·681	6·870	2·414	1·539	1·201	5·630
Wellington ...	3·882	4·453	3·780	3·280	4·540	5·212	5·658	4·299	3·941	5·000	3·500	3·999
South Island—												
Nelson	5·358	8·331	2·063	3·221	5·177	4·441	6·319	6·233	6·319	5·000	4·815	4·319
Hokitika	8·902	9·871	6·752	8·611	6·370	8·240	9·638	9·130	5·878	13·402	12·690	12·169
Bealey	9·681	8·902	3·921	7·433	8·079	5·019	10·378	7·799	5·811	15·501	8·733	14·087
Christchurch ...	2·311	2·370	1·752	1·811	2·280	3·189	2·449	2·319	1·161	2·142	2·130	1·622
Dunedin	3·599	2·142	2·220	2·122	3·949	2·441	2·500	2·228	2·000	2·500	2·969	3·012
Invercargill ...	5·279	3·921	3·980	3·571	5·401	5·019	3·441	4·390	2·661	3·929	4·520	3·622

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* Provisionally: one return being imperfect.

The seasonal observations in these tables show that the northern part of New Zealand is within the influence of the sub-tropical winter rainfall, the probability of rainfall in winter in that part of the colony being twice as great as in summer.

In the south, however, the rainfall, though irregular, is distributed more equally over the year. The chief difference to be observed is that on the west coast spring rains prevail, and on the east coast summer rains; while in the middle of the colony the driest season is autumn, and in the south it is winter and spring.

The contrast between the east and west coasts in the matter of rainfall is as striking as the difference in temperature. Thus, in the North Island, Napier on the east has only half the amount of rain that falls in Taranaki on the west. But the South Island, with its longitudinal range of lofty mountains, exhibits this feature in a still more marked manner, for the rainfall on the west is nearly five times that on the east. The excess of precipitation on the coast is clearly illustrated by the distribution of the glaciers on the opposite sides of the range: those on the western slope have an excessive supply of snow, and descend to a line where the mean annual temperature is 50° Fahr., while on the eastern slope they descend only to the mean annual temperature of 37°. The winter snow-line of the Southern Alps on the eastern side is 3,000ft., and on the western side 3,700ft.

Periods of lasting drought are almost unknown in New Zealand, and in two instances only do the records show a whole month at any station without rain.

WINDS.

Owing to the fact that most atmospheric disturbances pass from west to east, with the centre of the depression either to the north or to the south of or over New Zealand, there is a marked regularity in the successive changes of wind direction. When the centre of the depression passes to the south of New Zealand, which is the more frequent course, then north-westerly followed by south-westerly winds prevail, but they are much modified by the form of the land. These winds begin in the north-north-west, bringing heavy rain on the west coast, and gradually veer to south-west, after which fair bright weather sets in on that coast; but the same southerly wind, sweeping along the east side of the islands, brings heavy stormy weather, locally known as "southerly bursters," which, from the shape of the coast, reach the region of Cook Strait as south-east storms.

When the centre passes to the north of New Zealand, the result is that north-east winds impinge on the east coast, bringing rain, followed by cold south-easters, with heavy storms of rain and snow during winter in the south.

All the other winds are either land- or sea-draughts, with light fine weather, or are moderate winds produced by the circulation of the atmosphere round anticyclonic areas of high barometric pressure which are far more persistent in their influence than the fast-moving cyclonic or low-pressure areas.

RADIATION.

The effect of the prevalence of clouded sky is best illustrated by the average difference between the readings of the insolation or black-bulb maximum thermometer exposed to the sun, and of the radiation or minimum thermometer exposed to the night sky, and for this purpose two stations on either side of the Southern Alps may be selected.

—	Christchurch, East Coast, 43° 32′ S.L.			Hokitika, West Coast, 42° 42′ S.L.		
	Insolation.	Radiation.	Difference.	Insolation.	Radiation.	Difference.
Summer ..	131·72	44·78	86·94	84·02	48·38	35·64
Autumn ..	111·92	37·94	73·98	73·04	41·72	31·32
Winter ..	91·22	28·04	63·18	61·70	33·44	28·26
Spring	124·52	34·34	90·18	75·02	39·56	35·46
Extremes ..	158·00	14·54	143·46	97·34	21·92	75·42

THE MINERAL WATERS OF NEW ZEALAND.

By Sir JAMES HECTOR, K.C.M.G., M.D., F.R.S.

PRINCIPAL MINERAL SPRINGS.

New Zealand is singularly rich in springs of water holding mineral salts in solution, and these are already noted for their valuable medicinal properties. Some of the acid baths of greatest repute, such as the "Priest's" Bath, at Rotorua, have nothing equal to them in use in any part of the world.

Both hot and cold springs are found, the former being, with few exceptions, confined to the districts of the North Island where superficial volcanic forces have been active since the commencement of the Tertiary period, and are not yet altogether dormant. A few thermal springs are found to escape from the Upper Mesozoic rocks, in places where the source of heat can be attributed only to chemical decomposition of bituminous matters and sulphides; and in a few instances warm waters spring from Palæozoic rock-formations in the Middle Island. The cold mineral springs have a wider distribution, but as yet samples have been examined from comparatively few localities.

The mineral waters of New Zealand are classified, from analyses made in the Colonial Laboratory, under the following groups:—

Saline.—Containing chiefly chloride of sodium.

Alkaline.—Containing carbonates and bicarbonates of soda and potash.

Alkaline Siliceous.—Waters containing much silicic acid, but changing rapidly on exposure to the atmosphere, and becoming alkaline.

Hepatic or Sulphurous.—Waters the prominent characteristic of which is the presence of sulphuretted hydrogen and sulphurous acid.

Acid.—Waters, in which there is an excess of mineral acids, such as hydrochloric and sulphuric acid.

Mud Baths.—In addition to the clear-water baths, there are what are termed mud baths, in which the mineral waters are mixed with a pasty clay. Their properties vary with the nature, strength, and temperature of the mineral waters, the latter being maintained by steam jets. The best known mud bath is at Sulphur Point, Rotorua. It is an acid bath, and is also rich in sulphuretted hydrogen, one gallon including as much as 10·12 grains of this gas. It has therefore a very powerful action on the liver, but is somewhat dangerous, and must be used with caution.

ANALYSIS.	Grains per Gallon.
Sulphate of soda	13·32
„ lime	4·08
„ magnesia	4·86
„ iron (protoxide)	1·46
„ alumina	15·70
Silica	13·61
Hydrochloric acid	5·44
Sulphuric acid	4·36
	62·83

The following is a list of the best-known mineral springs, full details concerning which are to be found in the Official Laboratory Reports, the analyses having been made by William Skey :—

No.	Name and Locality.	Temp. Fahr.	Grains per Pint.	Chemical Character of Water.
	Bay of Islands District.	Deg.		
1	Ohaeawai and Pakaraka ..	60–116	16·8	Acid, aluminous; deposits mercury.
	Hauraki District.			
2	Waiwera	110	17·7	Alkaline, saline.
3	Puriri	60	67·1	Carbonated, alkaline.
3A	Te Aroha No. 1	102	73·0	..
	.. No. 2	112	67·9	..
	.. No. 3	112	67·6	..
	.. No. 4	92	39·9	..
	.. No. 5	100	73·8	..
	.. No. 6	104	77·3	..
	.. No. 7	86	70·5	..

No.	Name and Locality.	Temp. Fahr.	Grains per Pint.	Chemical Character of Water.
	Bay of Plenty.	Deg.		
4	White Island Lake	97–212	1850·8	Strongly acid.
5	White Island Springs ..	210	26·1	„
	Whakarewarewa.			
6	Turikore, or Spirit Bath ..	96–120	10·9	Sulphurous.
7	Koroteoteo, or Oil Bath ..	214	13·0	Caustic, alkaline,
8	Ngatarawa, Gas Pool ..	124	8·4	Sulphurous.
9	Papatangi, Lobster-pot ..	110	5·7	..
	Arikikapakapa.			
10	Mud Bath	98	9·2	Saline, acidic.
11	Sulphur Pool	160	6·8	Acidic.
12	Sulphur Spring	73–98	10·0	..
13	Sulphur Stream	80	8·5	..
14	Mud Lake	65	6·8	„
	Rotorua.			
15	Tapui te Koutou, Graham's Farm Bath	90–108	9·1	Alkaline.
16	Kuirau, Washing Spring ..	136–156	9·9	Alkaline, siliceous.
17	Waihunuhunukuri, Lake House Clear Bath	130–170	7·3	Alkaline.
18	Lake House Acid Bath ..	150	11·4	Acidic.
19	Waikite (*a*), Morrison's Hotel Bath	120	9·4	Alkaline.
20	Waikite (*b*), Scott's Bath ..	116	9·6	Alkaline.
21	Hinemaru, Hughes's Baths ..	170	16·7	„
22	Te Kauwhanga (*a*), Cameron's Bath	105	9·9	Acidic.
23	Te Kauwhanga (*b*), Painkiller	204	13·8	Acidic and hepatic.
24	Perekari, Sulphur Point Boiling Pool	130–150	7·0	Acidic.
25	Mud Bath, Sulphur Point ..	120	7·8	Acidic and hepatic.
26	Hot Pool, Sulphur Point ..	200	12·1	Acidic.
27	Whangapipiro, Madame Rachel's Bath	170–210	14·7	Alkaline and siliceou
28	Otamawhata	144	11·4	Alkaline.
29	Hospital Lake	66	11·3	Acidic.
30	Te Pupunitanga, Priest's Bath	94–110	12·1	„
31	Matatuatonga	172	13·8	Saline.
32	Toko, or Postmaster's Bath ..	120	11·9	Acidic.
32A	Waikupapapa, or Saddler's Bath	120	7·0	„
32B	Ngaruapuia, or Gemini Bath..	108	7·8	..
32C	Waikirihou, or Vaux's Bath ..	112	12·8	„
	Rotoiti.			
33	Te Kute, mud lake at Tikitere	100–212	6·1	Acidic, hepatic.
34	Te Mimi, hot waterfall, from 33° C.	90–112	3·8	Acidic.
	Taupo District.			
35	Rotokawa, Black Water ..	192	17·8	Acidic.
36	„ Yellow Water ..	152	22·0	„

No.	Name and Locality.	Temp. Fahr.	Grains per Pint.	Chemical Character of Water.
		Deg.		
37	Wairakei, Kiriohinekai, or White Water	112	1·8	Alkaline.
38	Ruahine, Crow's Nest ..	180	19·2	,,
39	,, Witches' Cauldron ..	192	20·8	,,
40	,, Ohinekahoro ..	195	23·0	,,
41	,, spring on flat near track	132	2·2	Feebly saline.
42	Otumahike, Acacia	136	3·9	Feebly alkaline.
43	Lofley's Gully, McPherson's ..	96	1·9	,,
44	,, cold stream ..	76	1·3	,,
45	,, warm stream ..	114	2·8	,,
46	,, Sumach ..	106	3·0	,,
47	,, Source No. 1 ..	106	3·0	Alkaline, siliceous.
48	,, Source No. 2 ..	136	19·0	Alkaline, saline.
49	,, Kokowai ..	104	2·0	Feebly saline.
50	Waipahihi, A.C. Bath No. 1 ..	110	4·7	Chlorinated saline.
51	,, ,, No. 2 ..	146	5·7	Saline.
52	,, Tea-tree Spring ..	170	13·4	Alkaline, siliceous.
53	,, Source No. 1 ..	160	10·8	Alkaline.
54	,, Source No. 2 ..	166	13·0	,,
55	,, Waipahihi Stream	98	8·6	Saline.
56	Left bank, Waikato, Waiariki	125	10·8	Chlorinated saline.
	Waikato District.			
57	Whangape	160–200	6·0	Alkaline.
57A	Okoroire	99–113	5·29	Chlorinated saline.
	Ruapehu District.			
58	Onetapu, Waikato	70	58·0	Sulphurous.
	East Cape District.			
59	Roparoa, Waiapu	Cold	..	Saline, bituminous.
60	Manutahi ,, ...	,,	..	,,
61	Pepoti ,, ...	,,	..	Hydrocarbon gas.
62	Waipaoa, Poverty Bay ..	,,	..	Bituminous.
63	Waipiro, Waiapu	144	..	Calcareous, bituminous.
	Wellington District.			
64	Wallingford	60	10·4	Acid.
65	Pahua	Cold	184·2	Alkaline.
66	Burton's Spring	,,	..	..
67	Akiteo (*a*)	,,	62·4	Alkaline.
68	,, (*b*)	,,	4·8	Sulphurous.
68A	Kawara, Wanganui River ..	,,	5·4	Alkaline, carbonate.
	South Island.			
69	Hanmer Plain Springs, Amuri	90–104	10·8	Alkaline.
69A	The Forks, Nelson	Cold	105·6	Sulphurous.
70	Sumner Lake Springs ..	93	2·3	Saline.
71	Amberley Spring, Canterbury	Cold	11·7	Chalybeate.
71A	Waimate, Canterbury ..	,,	57·5	,,
71B	Ross, Westland	134	3·5	Saline.
72	Wickliffe Bay Spring, Otago ..	..	34·6	,,
73	Gibson's Spring, Southland ..	Cold	2·3	Alkaline.

1. *Ohaeawai*, Auckland.—A group of springs used as baths, 17 miles from Bay of Islands, the waters of which are acidic, depositing sulphur and alum on cooling. Silica is deposited as a granular sediment only. These springs are chiefly interesting from their being accompanied by an escape of mercurial vapour, which deposits cinnabar and metallic mercury. Their medicinal action is tonic and chalybeate, and they have a specific alterative action in skin diseases.

2. *Waiwera*, on the coast, 30 miles north of Auckland.—A powerful escape of weakly alkaline and saline water, extensively used as baths for rheumatic and dyspeptic complaints; used internally it has also a mild antilithic action. This spring is largely resorted to, and most comfortable accommodation is provided for visitors.

	Grains per Gallon.
Chloride of sodium	116·715
„ potassium	0·091
„ lithium	Traces
Iodide of magnesium	Traces
Sulphate of soda	0·383
Bicarbonate of soda	87·513
„ lime	10·692
„ magnesia	0·954
„ iron	0·683
Alumina	Traces
Silica	2·464
	219·495

3. *Puriri*, about ten miles from Grahamstown.—A cold, effervescent water, having valuable properties from the presence of a large percentage of alkaline carbonates. It is bottled both as still and aërated water, and is coming into repute as an antilithic aperient, and would probably be useful in cases of acid dyspepsia and in disorders of the kidneys and bladder. In chemical properties it approaches very closely to the Fachingen and Ems waters, of Nassau in Germany.

	Grains per Gallon.
Chloride of sodium	21·938
Iodide of magnesium	Traces
Sulphate of soda	0·940
„ potash	4·938
Carbonate of iron	Traces
Bicarbonate of lime	28·506
„ magnesia	25·625
„ soda	452·393
„ lithia	Traces
Silica	2·772
Phosphoric acid	Not determined
	537·112

3A. *Te Aroha*, one of the most favourite health resorts in New Zealand, is very prettily situated on the Waihou (Thames) River, 36 miles southward from the Thames, and within easy reach of Auckland by rail. The township takes its name from the adjoining mountain, which rises to a height of over three thousand feet, and contains numerous valleys and gullies filled with a great variety of tree-ferns and other forms of luxuriant vegetation. The climate is equable, dry, and salubrious. The accommodation for visitors is very good, and the natural attractiveness of the place has been largely added to by improvements carried out by the local authorities.

There are eighteen springs in the township (see *post*) under the control of a Domain Board; fifteen of the springs are hot or tepid. Seven large bath-houses have been comfortably fitted up; there is also a large building, containing a number of private single baths, and a summer-house, with fountain, providing the mineral water for internal use. The waters are, with the exception of the sulphur springs, saline and feebly alkaline, and strongly charged with carbonic-acid gas, which is constantly escaping from the springs in large quantities, rendering them effervescent and pleasant. These springs are very similar to those of Vichy (France), Ems (Germany), and Bilin (near Teplitz, Bohemia), and are quite equal to them in strength. Potash exists in all these waters, but only in very small quantity. Baths Nos. 1 to 15 inclusive, and No. 18, are colourless, with the exceptions of Nos. 4, 13, and 14, which are pale-yellow. No. 16 is turbid, owing to the presence of precipitated sulphur.

Bath No. 1, pleasantly situated up the hill, is set apart for ladies, and is much used.

Bath No. 2 is of large size, with waiting and dressing-rooms attached. A short distance from it is a reservoir of hot water, containing 15,000 gallons. Three-fourths of the water from the springs supplying it is at a temperature of 90 degrees, and the temperature of the balance, from certain springs, ranges up to 119 degrees.

No. 3 bath-house is divided into eight private rooms, with a bath in each, fitted with hot and cold water valves to regulate the temperature as desired, and each provided with a shower.

Nos. 4, 5, and 6 are extensively patronised, and good bathing-houses are erected over the springs.

No. 15 spring is largely used for drinking, and according to Dr. Alfred Wright, the late physician to the Thermal Springs Domain (from whose admirable little handbook on Te Aroha some of the particulars here given have been taken), its water is a valuable adjunct to the treatment of certain forms of dyspepsia and kidney affections. No. 8 is also a drinking spring, but of lower temperature. No. 16 (cold) has little overflow. Sulphur is found in small quantities in the surrounding clay, and there is emitted a strong sulphuretted-hydrogen gas. No. 17, also a cold spring, is used for application in cases of eye affections. No. 18 is a cold soda-water spring.

In order to meet the demand which has sprung up for a potable supply of Te Aroha mineral water, for drinking elsewhere than at the fountain, Government has permitted the granting of sole rights for a term of years to a company, formed for the purpose of working and distributing the mineral waters, and the Te Aroha Soda and Mineral Water Company (Limited) had a large exhibit of these waters in the New Zealand Court at the Melbourne Centennial Exhibition of 1888.

ANALYSIS OF EIGHTEEN MINERAL WATERS FROM TE AROHA.—No. 4423.

Alkaline Waters 1 to 15, 17, and 18.

No.	Temp. in deg. Fah.	Dimensions of Bath.	Quantity of Water in each.	Chloride of Sodium.	Chloride of Potassium.	Sulphate of Soda.	Carbonate of Lime.	Carbonate of Magnesia.	Carbonate of Soda.	Alumina.	Iron Oxide.	Silica.	Total Grains per Gallon.
		Ft. in. Ft. in.	Gals.										
1	102	9 10 x 7 0	1,607	60·25	1·72	38·32	10·77	6·86	461·56	Trace	Trace	7·56	586·99
2	112	9 7 x 8 5	1,725	60·45	1·90	32·67	7·12	4·21	426·29	„	„	7·12	539·76
3	112	...	...	60·51	(with the sodium chloride.)	32·82	7·24	4·20	429·19	„	„	7·21	541·17
4	92	11 0 x 9 0	1,771	34·24		19·16	4·62	2·14	246·49	„	„	5·17	311·82
5	100	6 7 x 5 8	,998	68·77		36·92	6·91	3·15	476·58	„	„	6·10	598·43
6	104	11 0 x 9 0	2,660	66·23		35·14	7·12	2·99	499·75	„	„	7·14	618·37
7	86	7 x 5 0	1,009	67·13		34·04	7·46	4·34	444·20	„	„	7·01	564·18
8	109	...	...	66·14	1·96	32·91	7·47	4·21	451·97	„	„	8·60	573·26
9	112	...	...	41·29	...	22·16	4·94	2·61	301·17	„	„	6·44	378·61
10	96	...	...	35·24	...	19·19	4·67	2·31	276·19	„	„	6·00	343·60
11	88	...	...	34·69	...	20·12	5·11	2·56	261·44	„	„	6·11	330·03
12	88	...	...	41·06	...	22·96	5·12	2·99	300·97	„	„	7·11	380·81
13	120	...	...	40·67	...	21·86	6·11	3·13	301·64	„	„	6·86	380·27
14	122	...	...	42·61	...	23·16	7·14	3·49	321·64	„	„	6·66	404·70
15	130	...	...	43·11	...	22·16	6·91	3·61	331·76	„	„	7·05	414·60
17	...	...	...	2·71	...	3·92	·64	·27	9·36	...	...	4·21	21·11
18	...	...	...	16·12	...	8·16	1·97	1·01	131·72	Trace	Trace	13·14	172·12

4–5. *White Island.*—A conical island in the Bay of Plenty, formed by the summit of an extinct volcanic mountain rising out of deep water. The crater is occupied by a lake of strong mineral water, which is fed by intermittent geysers and boiling springs surrounding it. All these waters are intensely acid, and deposit sulphate of lime; while the accompanying vapours form irregular deposits of pure sulphur. The first water is too powerful to be used medicinally in its natural state, but might be turned to valuable account in certain chemical manufactures.

6–34 (*Rotorua, &c.*) are associated geographically as all coming from the famous Rotorua and Rotoiti Districts. They, however, present considerable variety in quality, and may be classed as follows:—

6–16. *Alkaline and Siliceous Waters.* — These differ from the ordinary alkaline waters in the presence of silicic instead of carbonic acid as the combining agent. They are remarkable for building extensive mounds and terraces, composed of silica deposited by the cooling water, and involving as it solidifies a certain amount of granular silica, which is held in mechanical suspension; in this manner the wonderful pink and white terraces of Rotomahana and the domes of Whakarewarewa were formed. These waters invariably contain carbonic-acid gas, and in some cases also sulphuretted hydrogen in large quantity, the oxidation of which tends to form sulphurous and sulphuric acid and to set free hydrochloric acid, and by this reaction gives rise to acidic waters. When used as baths these waters have an undoubted alterative action, and are very useful in rheumatic affections, especially in gouty constitutions. This is probably due to the specific action of silicates in promoting the discharge of uric acid from the system, as has lately been pointed out by French chemists.

17–34. *Acidic Waters.*—In the case of these waters the carbonates have been wholly eliminated, and the alkaline salts are formed by a mineral acid, either sulphuric or hydrochloric. In some cases the acid is greatly in excess, forming a bath which has a powerful action upon the liver, and upon diseases consequent on the derangement of that important organ. In some, the presence of sulphurous and hydro-sulphuric acid in large quantities gives these baths great efficacy in skin diseases.

The following are analyses of the four chief types of mineral waters in the Rotorua District:—

I. ACIDIC.

30. "Te Pupunitanga," commonly known as the "Priest's Spring and Bath;" aluminous and strongly acid (reaction acid).

	Grains per Gallon.	
	Spring (1881).	Bath (1893).
Sulphate of soda	19·24	8·42
„ potash	Traces	Traces
„ lime	7·41	4·64
„ magnesia	3·03	1·24
„ alumina	21·67	11·27
„ iron	1·24	Traces
Sulphuric acid	22·12	1·42
Hydrochloric acid	3·65	8·43
Silica	18·41	7·86
	96·77	43·28
Sulphuretted hydrogen	2·98	3·92
Carbonic-acid gas	2·16	...

II. ALKALINE SILICEOUS.

27. "Whangapipiro," commonly known as "Madame Rachel's Bath;" saline waters with silicates (reaction alkaline).

	Grains per Gallon.
Chloride of sodium	69·43
„ potassium	3·41
„ lithium	Traces
Sulphate of soda	1·53
Silicate of soda	31·02
„ lime	4·24
„ magnesia	1·09
Iron and alumina oxides	2·41
Silica	18·21
	131·34
Carbonic-acid gas	3·79

III. HEPATIC OR SULPHUROUS.

22. "Te Kauwhanga" (*a*), commonly known as "Cameron's Bath;" hepatic, feebly saline, with excess of acid (reaction acid).

	Grains per Gallon.
Sulphate of soda	50·39
„ potassium	0·79
„ calcium	5·68
„ magnesia	Traces
„ alumina	0·29
Silica	12·64
Hydrochloric acid	13·62
Iron oxides	1·29
Sulphuric acid (free)	5·29
	89·99
Sulphuretted hydrogen	8·81
Carbonic-acid gas	1·96

IV. SALINE SILICEOUS.

6. "Turikore." Faintly acid reaction, which turns to alkaline on boiling.

	Grains per Gallon.
Silicate of soda	16·32
„ lime	1·61
„ magnesia	1·14
„ iron	0·39
Sulphate of soda	13·47
Chloride of potassium	1·24
„ sodium	53·61
Phosphate of alumina	Traces
	87·78

35-56. With the exception of the first two these waters are saline and faintly acid in character. They are reported to be suitable for internal and external use, as alteratives, in scorbutic and tubercular diseases, also in chronic nervous affections and cutaneous eruptions. The presence in them of iodine, which was formerly reported, has been disproved by recent analyses of authentic samples.

57. *Whangape*, Waikato, is a hot alkaline water, in composition similar to the springs at Puriri and Waiwera.

57A. *Okoroire Hot Springs* and Sanatorium: These are situated in a picturesque gorge in the upper part of the Thames Valley, near Oxford, at an altitude of 350ft. Excellent hotel accommodation is provided, and both enclosed and open-air baths can be enjoyed. The climate is very invigorating, and capital trout-fishing is to be had in the numerous streams of the district. The following analyses of the principal springs have been furnished by Professor F. D. Brown, of Auckland University College:—

Upper, or No. 2, Bath: Temperature, 113°; flow, 1,300 gallons per hour.

	Grains per Gallon.
Calcium sulphate	2·77
Magnesium chloride	0·69
Sodium chloride	9·48
Sodium carbonate	17·18
Potassium carbonate	1·42
Iron oxide	1·10
Silica and silicates	9·70
	42·34

Lower or Open-air Bath, No. 4: Temperature, 99°; flow, 4,100 gallons per hour.

	Grains per Gallon.
Calcium sulphate	2·42
Calcium carbonate	1·84
Magnesium carbonate	1·03
Sodium chloride	4·34
Alkaline carbonate	11·41
Iron oxide	0·70
Silica and silicates	9·82
	31·56

General remarks: Apart from the medicinal value which these springs possess in common with most other alkaline hot springs, they are remarkable for their large flow of water, and for their freedom from any unpleasant odour or deposit. This fact should render the springs specially attractive to persons in good health.

58. *Onetapu* Desert, at the sources of the Waikato and Wangaehu Rivers. This powerful spring, which issues at the base of Ruapehu, is so strongly charged with sulphates of iron and alumina as to taint the water of the latter river from its source to the sea, a distance of seventy miles. It is only one of many mineral springs that occur in the still active volcanic district of Tongariro.

59–62. In the *East Cape* and *Poverty Bay District* are four—out of some seventeen different springs which have been discovered—that yield hydrocarbons, in the form of either gas or oil, associated with saline waters. The source of these springs is probably to be found in certain bituminous shales at the base of the cretaceous formation.

63. *Waipiro*, in the same district (in which there is no evidence of any volcanic action), is interesting as being both a hot saline spring, and as depositing immense quantities of carbonate of lime in acicular crystals. This lime-deposit is built up in the form of a wall, marking the line of fissure through which the water escapes.

64, 65. Are cold springs in the *Wellington District*, and belong to the class of saline waters, which are generally feebly acid. Springing from rocks of Lower Secondary formation, they are interesting from the large proportion of iodine and other exceptional elements which they contain. Pahua is the most notable in this respect, and has the following composition:—

	Grains per Gallon.
Chloride of sodium	1,303·329
„ potassium	0·501
„ magnesium	34·960
„ calcium	120·885
Iodide of magnesium	0·582
Bromide of magnesium	Traces
Sulphate of lime	3·026
Phosphate of alumina	0·641
„ iron	Traces
„ lime	0·430
Bicarbonate of lime	6·451
Silica	1·696
Iodine, free	1·595
	1,474·096

Total quantity of iodine to the gallon (free and combined), 2·177 grains.

66. Burton's, *Taipo*, in addition to iodine, contains traces of arsenic.

67, 68. *Akiteo* (*a*) is a strong saline water containing iodides and bromides, while Akiteo (*b*) is an aërated chalybeate water, and would be valuable as a tonic, being similar to the springs at Pyrmont, Waldeck, and Recoaro, Venetia. Aërated chalybeate waters of medicinal value are found in many other parts of New Zealand; among these may be mentioned a locality near Whangarei, in the North Island, and Chain Hills, near Dunedin, in the Middle Island.

69. The springs at the *Hanmer Plains*, Amuri (Middle Island), are alkaline, with a strong escape of sulphuretted hydrogen, and form useful baths in hepatic and cutaneous diseases.

The water from the springs in question was in 1892 quite clear and colourless. It emitted a very offensive odour, and manifested a strong alkaline reaction after being boiled for a short time. The following are the results obtained by analysis of its fixed salts per gallon. The small quantity of sediment that had formed is excluded from the results:—

	Grains per Gallon.
Chloride of sodium	62·09
„ potassium	0·15
„ lithium	Trace
Iodide of magnesium	Trace
Carbonate of lime	0·55
„ magnesia	1·77
„ iron	0·05
Sulphate of soda	7·48
Carbonate of soda	2·66
Phosphate of alumina	Traces
Silica	2·63
	77·38

The total quantity of carbonic acid was not estimated, owing to the small quantity of water sent. The quantity of sulphuretted hydrogen amounted to 2·19 grains per gallon. The water having been analysed as a mineral water, the organic matter has not been estimated, or tested as to nature; but a former analysis made by Professor Bickerton in 1882 is very interesting, as it gives the nature of the sediment and organic matter contained in the water. The sample was taken from spring No. 8 before it was incorporated with No. 1. It is as follows:—

Sediment—silica and free sulphur		1·400
Nitrogen as free ammonia	0·092	
„ as albuminoid ammonia ...	0·048	
„ as nitric acid	0·047	
Total nitrogen	——	0·187
Sulphuretted hydrogen, free		3·430
Sulphate of lime	9·940	
„ potash	1·960	
„ soda	0·400	
Bicarbonate „	7·770	
Chloride „	56·230	
Bicarbonate of magnesia	0·640	
Total fixed matter	——	76·940
Total grains per gallon		81·957

The total amounts of fixed salts in the two analyses correspond very closely. The sulphates and carbonates in either case are so small that the fact of their varying in the two analyses is a matter of no importance. The fact of the discovery of traces of iodine and lithium in the recent analysis is interesting.

It will be noticed that iodine occurs in this water, but in such small quantity that it can be found only by concentration.

The water is hepatic, moderately saline, and should prove useful in diseases of the liver and the skin. The water from these springs was reported on and partially analysed in May, 1867, with very similar results (Hector, "Transactions N.Z. Institute," Vol. iii., p. 297, 1870). A sanatorium has been established by Government at this place, of which a short account is appended.

70. At the distance of a few miles from Sumner Lake the water has a temperature of 93° Fahrenheit, as it gushes from the sandstone rock, but it does not contain sufficient matters in solution to entitle it to rank as a mineral water.

71. *Amberley.* This was analysed by Professor Bickerton, of Canterbury College, and reported by him to be a chalybeate water, but unfit for use on account of the organic matter present. The analysis gave the following quantitative results:—

	Grains per Gallon.
Total dissolved solids	37·6
Volatile	8·8
Fixed	28·8
Carbonate of lime	3·6
Carbonate of magnesia	2·2
Chlorine	10·5
Iron protoxide	2·3
Free ammonia	0·069
Albuminoid ammonia	0·034
Sediment	165·2

72. *Wickliffe Bay,* Otago. An analysis of this water is given by Professor Black, of Otago University. It appears to be a saline water:—

	Grains per Gallon.
Sulphuric acid (combined)	39·3
Chlorine	112·0
Magnesia	18·3
Lime	11·5
Alkalies	83·0
Carbonic acid (combined)	12·6
	276·7

73. *Gibson's Spring,* Southland, is a water which is stated to be a specific in diarrhœa, and contains a large amount of organic matter, to some astringent in which its medicinal qualities are probably due.

HANMER PLAINS SANATORIUM.

The route is from Christchurch to the railway terminus at Culverden, a distance of sixty-nine miles, and thence by coach to Hanmer Plains, a distance of twenty-four miles. The journey is accomplished in ten hours, allowing an hour at Culverden for luncheon.

The sanatorium buildings have been erected by Government on a five-acre enclosure, and provide amply for the comfort of visitors. Accommodation at moderate rates is to be had at two hotels close by. The establishment has become a very favourite resort, over seven thousand baths being taken in the year.

The springs are ten in number; their chemical character analysis shows to be one and the same, the fixed salts in each varying slightly in quantity but not in quality. Nos. 5, 6, 9, and 10 are cold, and, having no outflow, are valueless. Nos. 2 and 3 are small holes without overflow, having temperatures respectively of 94° Fahr. and 114° Fahr. Nos. 1, 8, 4, and 7 are the springs utilised. Nos. 1 and 8 are converted into tanks, 21ft. by 15ft. and 25ft. by 18ft. respectively; they are connected by a 3½in. galvanised-iron pipe, and give the total supply of hot water used in the baths, which is equivalent to about 25 gallons per minute, running to waste eighteen hours out of the twenty-four.

No. 7 is a circular pool some 25ft. in diameter, enclosed by a corrugated-iron fence, and used as a swimming-pool. Its temperature varies, being usually about 80° Fahr., but sometimes cold. There are five dressing-boxes around it. No. 4 is a round open pool some 15ft. in diameter, also fenced in with corrugated iron. The water has a temperature of 83° Fahr., and is used for cooling the supply from Nos. 1 and 8. It is the only mineral water available for the purpose. Its outflow is not allowed to run to waste, but is drawn upon as required. The supply is 4,500 gallons daily.

WAI-RONGOA MINERAL WATER.

North Taieri, Otago. This water has recently been analysed by Mr. A. G. Kidston-Hunter, analytical chemist, of Dunedin, who has kindly forwarded the following report, dated 1st August, 1895:—

"It is bright, sparkling, and clear, and ranks in the first class of pure waters. It contains only a very small percentage of organic matter, no free ammonia is present, and ammonia as albuminoid exists only to the extent of 0·02 parts per million.

"The mineral constituents in the water are: (1.) It is naturally acidulated, and, in the case of the crystal springs, contains a volume of carbonic acid gas in solution. (2.) It is distinctly a chalybeate water, and possesses the peculiar flavour which is characteristic of this variety of mineral water.

"For medicinal purposes it is invaluable for maintaining alkalescence of the blood, and therefore this particular water will be much more beneficial for that purpose than preparations of mineral water, much stronger, artificially produced.

"I may approximately compare the Wai-rongoa Springs to the celebrated mineral springs at Plombières, in France, which the late Emperor Napoleon III. often visited for the purpose of benefiting his health.

"These are also cool chalybeate springs, and specially suitable for gout and rheumatism, as well as internal and spinal complaints.

"As the results of my investigation, I am of opinion that the Wai-rongoa mineral-water springs are of perfect purity, and especially suitable for preparing a high-class mineral water."

Analysis of Dissolved Solid Matter.

	Grains per Gallon.
Carbonate of sodium	2·22
Chloride of sodium	2·35
Chloride of potassium	0·31
Sulphate of calcium	2·38
Carbonate of calcium	1·82
Carbonate of magnesium	1·00
Carbonate of iron	0·18
Silica	3·22
Alumina	0·25
Organic matter (nitrates, &c.)... ...	0·27
Total grains per gallon ...	14·00

THE THERMAL-SPRINGS DISTRICT AND THE GOVERNMENT SANATORIUM AT ROTORUA.

By A. Ginders, M.D., L.R.C.P. (D.P.H., Cantab.), Medical Superintendent, Rotorua Sanatorium.

Climate of Rotorua.

The geographical position of the North Island of New Zealand will naturally suggest something of the character of its inland climate at an elevation of 1,000ft. Rotorua is some forty miles from the coast. Its elevation is 990ft. above the sea-level. The atmosphere is drier and more bracing than on the coast—in winter considerably colder, and in summer perhaps somewhat hotter, but of a dry pleasant heat, free from the moist oppressiveness which characterizes the summer heat of Auckland and other coast towns. The mean temperature of spring is 53°, of summer 66°, of autumn 57°, and of winter 45°. The relative moisture of the air for the four seasons (taking complete saturation at 100°) is—for spring, 74°; for summer, 66°; for autumn, 67°; and for winter, 74°. The steam which rises so abundantly and perpetually all over the district no doubt adds considerably to the moisture of the atmosphere. This was clearly shown in the month of June, 1886, when the great eruption of Tarawera took place. The relative moisture for that month was 10° in excess of the average, owing to the immense amount of vapour caused by the eruption. The rainfall for the year is about 50in., and the number of days on which rain falls about 140. Auckland has

18in. less rain, and thirteen more rainy days. The daily range of temperature is greatest in the summer and least in the winter. This obtains throughout the whole of New Zealand, and is, indeed, one of the most charming features of our climate. No matter how hot a summer's day may be, the nights are invariably cool. The mean daily range of temperature for spring is 21°, for summer 28°, for autumn 23°, and for winter 20°.

These annual means, it must be remembered, are based on observations extending over seven years only, and consequently have no more than a relative value. For example, the rainfall for the six years ending with the year 1891 averaged 50in. per annum, but in 1892 it was 67in., and in 1893—an exceptionally wet year—it reached 93in.; so that for these averages to have an absolute value they must be based on observations extending over a far longer period. The annual mean temperature for 1894 was 55°, and the rainfall 55·22 in.

The most agreeable months of the year for an invalid to visit Rotorua are February, March, and April; the least pleasant are August, September, and October; but, as there is ample boarding accommodation close to the baths, the invalid is virtually independent of the weather. A climate better adapted to the necessities of the class of patients visiting this health-resort could not be desired. They are, as a rule, persons in fairly vigorous health, in whom it is desirable to maintain the normal power of adaptation and resistance to climatic changes. A climate in which the same conditions prevailed for long periods of the year would fail to secure this end; but one in which the various factors of temperature, moisture, light, electricity, wind, and atmospheric pressure are subject to moderate variations is, in every way, the one to be desired.

It is most desirable that invalids visiting Rotorua should be well informed as to the character of our climate. I have found that considerable misapprehension exists on this point, particularly amongst our visitors from Otago and Southland, their impression being that Rotorua is a very warm place, and that in summer they have to bring only the lightest possible clothing. This is a great mistake, as will be understood at once when I say that in February and March it is not uncommon to find in twenty-four hours a thermometric range of 100 degrees between the solar and terrestrial radiation temperatures. Our visitors, therefore, should provide themselves with both light and heavy clothing, no matter at what season of the year they may arrive.

Area of Thermal-springs District.

The Thermal-springs District of New Zealand comprises an area of upwards of 600,000 acres, or close on 1,000 square miles. The length of the district is some fifty miles, with an average breadth of twenty miles. Its altitude varies from 1,000ft. to 2,000ft. above the sea-level.

PHYSICAL FEATURES.

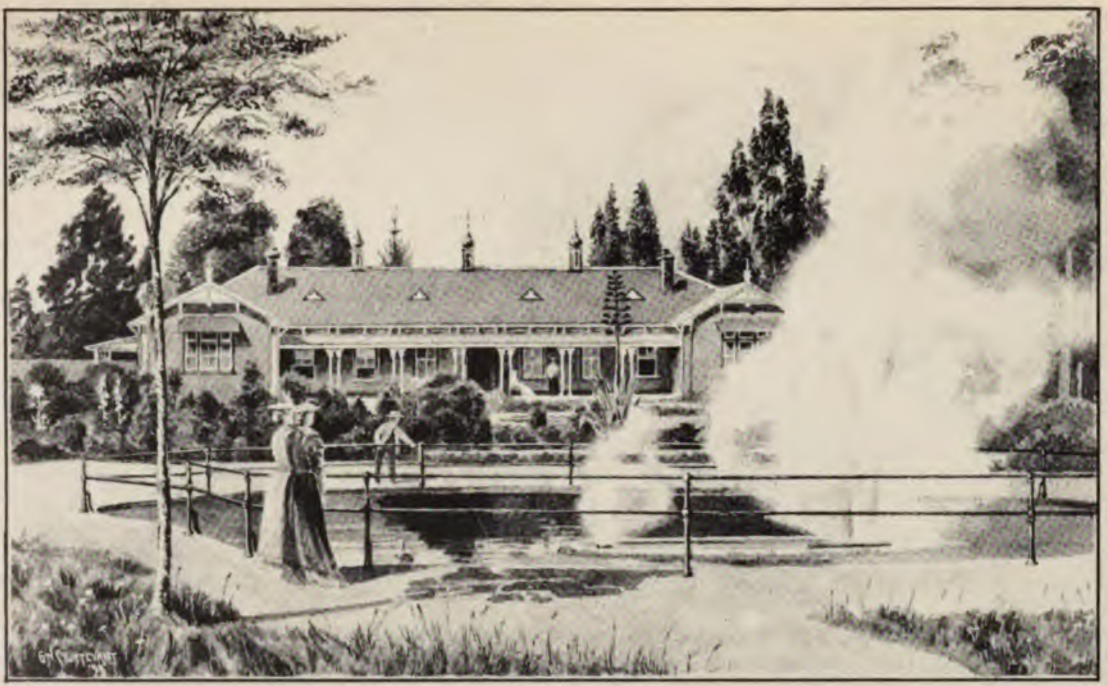
The most striking physical features of this region are the extensive pumice-plains, intersected in various directions by high ranges of igneous formation, which are relieved here and there by enormous trachytic cones. Forests of extraordinary luxuriance and beauty clothe the mountains and border the extensive plateaux, while hot lakes, boiling geysers, and thermal springs are dotted far and wide over the country. The Thermal-springs District, however, as defined on the maps, by no means embraces the whole volcanic and hydrothermal activity of the island. Although the volcanic slopes of Ruapehu and Tongariro bound this region on the south, hot springs are found here and there for fully 250 miles beyond its western boundary—in fact, as far north as the Bay of Islands. Within the district it is no exaggeration to say that hundreds of hot springs exist, to say nothing of mud-volcanoes, solfataras, and fumaroles.

VARIETIES OF MINERAL WATERS.

These springs are of the most varied chemical character, and of every degree of temperature from 60° to 212°. Numbers have yet to be submitted to analysis. Those which have been examined in the laboratory of the Geological Survey Department in Wellington are divided by Sir James Hector into five classes: (1) *Saline*, containing chiefly chloride of sodium; (2) *alkaline*, containing carbonates and bicarbonates of soda and potash; (3) *alkaline-siliceous*, containing much silicic acid, but changing rapidly on exposure to the atmosphere, and becoming alkaline; (4) *hepatic*, or *sulphurous*, characterized by the presence of sulphuretted hydrogen and sulphurous acid; and (5) *acidic*, containing an excess of sulphuric or hydrochloric acid, or both. In addition to these we have saline waters, containing iodine, cold acidulous chalybeates, and saline acidulous chalybeates. These, however, are in situations at present inaccessible to the invalid, or, if not out of reach, at least destitute of the conveniences and comforts essential to the sick, but they are no doubt destined in the near future to attain a high medical reputation.

THE ROTORUA SANATORIUM: NAMES OF THE PRINCIPAL BATHS.

The Government of New Zealand has very wisely chosen the southern shore of Lake Rotorua as the basis of operations for opening-up this wonderful district. Here are grouped together numerous examples of the five classes of springs I have mentioned, and here the Government fixed their first sanatorium and bathing establishment. The sanatorium reserve at Rotorua comprises an area of some 50 acres, bounded on the north and east by the lake, and on the west and south by the Township of Rotorua. Twelve years ago this was a howling wilderness, covered with manuka scrub, and diversified only by clouds of steam rising from the various hot springs. Here the adventurous invalid of that day had to pitch his tent, and be satisfied



Sanatorium at Rotorua.

with a hole in the ground for a bath; and if the spring he wished to use happened to be too hot for his purpose he probably had to dig the hole for himself, and regulate the supply and temperature of the water to the best of his hydraulic ability. In many instances he immortalised himself by giving his name to the spring—a name still retained. Thus we have "Cameron's Bath," "McHugh's Bath," "Mackenzie's Bath," and "The Priest's Bath." Other springs have received their names from some real or imaginary quality. Thus we have "Madame Rachel," "The Pain-killer," "The Coffee-pot," and "The Blue Bath." Now this scene of desolation is completely transformed. Walks and drives planted with evergreen trees traverse it from end to end, fountains and flower-gardens delight the eye, and commodious buildings for the entertainment of invalids are springing up on every side. The principal of these are the Sanatorium Hospital, the medical residence, the Priest's Pavilion, the Rachel Pavilion, the Blue Swimming-bath (to which is attached the sulphur-vapour bath), and Brent's boarding-house.

Considerable improvements in the way of extended accommodation are being carried out, both at the Swimming Bath and at the Rachel Pavilion. From the former the natural sulphur-vapour bath has been separated, and made a distinct department, so that it may be used by ladies while gentlemen occupy the swimming bath, and *vice versâ*. At the Rachel Pavilion, four new private baths have been constructed, with two dressing-rooms attached to each. This is a distinct advance, and will enable the attendant to put two bathers through the one bath in the time usually occupied by one bather when the bath-room is used both for dressing and undressing.

The most noticeable addition to our bathing accommodation effected during the past year has been the construction of the new sulphur baths. They are situated on the western shore of the lake, at a distance of about half a mile from the Priest and Rachel Pavilions, and are approached by a good carriage-drive. They consist of two large public *piscinæ* (each 24ft. by 12ft.) and four smaller ones (each 12ft. by 10ft.), one of the former and two of the latter being appropriated to each sex. There are twenty dressing-rooms, ten in each department. It has been found necessary to leave the baths open to the air, as the gases arising from them are apt to produce vertigo and fainting unless they are exposed to very free ventilation. In the summer weather they will be sheltered from the sun by canvas awnings. The temperature of the spring supplying these baths is 114° Fahr., and the outflow varies from six to seven thousand gallons per hour. The water rises through a fissure in the rock of considerable length, and an efficient method of regulating the temperature has been devised by our ingenious engineer, Mr. Malfroy. It consists of a series of sluices, one of which is connected with each bath; if all the sluices are closed the water cools by natural radiation of heat, and if any sluice is opened the bath fed by it rises in temperature.

THE HOSPITAL.

The hospital, which was opened in 1886, was unfortunately destroyed by fire in November, 1888. A new and far larger building has lately been erected by the Government. It is designed to accommodate twenty-one patients—twelve males and nine females. The stipulations made by the Government with regard to admission are that the patient shall be able to show that his case is one likely to be benefited by the use of the baths, and that he is unable to pay the usual hotel or boarding-house charges.

THE REGULATIONS AND TARIFF.

The following is a copy of the regulations under which patients are admitted to the institution:—

1. Applications for admission of persons shall be addressed to the Resident Medical Officer at the Sanatorium, Rotorua.

2. No person shall be admitted (unless in accordance with Regulations 5, 6, and 7) except on the recommendation of the Hospital or Charitable Aid Board of the district to which he belongs, or of the Trustees of the benevolent society or hospital (if separate institutions) of the town in which he lives.

3. The charge for maintenance and treatment is 21s. a week.

4. The Board or Trustees, in making such recommendation, shall guarantee the cost of such patient, shall send him or her at their own charge to Rotorua, be responsible for his or her return-passage, and provide a sufficient supply of clothing. They shall also furnish a report on the case by a duly-qualified medical practitioner, in order that it may be seen whether the case is one that is likely to profit by treatment at the Sanatorium.

5. Members of any duly-registered friendly society may be admitted, on the recommendation of the lodge to which they belong, on the same terms as patients recommended by a Hospital or Charitable Aid Board, and Regulations 3 and 4 shall be read as applying to them in all respects: Provided that not more than three such persons shall be resident at the Sanatorium at any one time, and that all the hospital beds are not required by patients admitted under Regulation 2.

6. When all the beds are not occupied by patients admitted under Regulations 2 and 5, the Resident Medical Officer may, at his discretion, admit persons, being *bonâ fide* hospital cases, who have undertaken to pay 30s. a week for maintenance and treatment.

7. When all the beds are not occupied by patients admitted under Regulations 2, 5, and 6, persons may be admitted on the following conditions:—
    (1.) That the Resident Medical Officer has certified that each such person is likely to be benefited by treatment at the Sanatorium.
    (2.) That the expenses to and from Rotorua are provided by each such person, together with a sufficient supply of clothing.
    (3.) That not more than four such persons shall be resident at the Sanatorium at one time.

8. The stay of each patient is limited to three months, but the Resident Medical Officer can, at his discretion, extend the period to six months.

This means, in brief, that patients sent by the Charitable Aid Boards of the country are to be admitted at all times at one guinea per week; that three beds may be occupied by members of registered friendly societies on the same terms; that not more than four free patients shall be resident at the same time; and that if all the beds are not occupied by the three classes of patients enumerated, the medical officer may, at his discretion, admit suitable cases, paying for themselves, at the rate of 30s. per week. Such patients, if they wish to avoid disappointment, should not leave their homes until they have communicated with the resident medical officer, and been assured by him that their cases are suitable, and that they will be admitted on arrival.

It should be distinctly understood that Hospital Trustees, or Charitable Aid Boards, or Friendly Societies recommending patients to this institution are held responsible for payment in case such patients are unable or fail to pay for themselves.

It cannot be too widely known that there is no private accommodation in this institution ; whatever the regulations under which the patients are admitted, they are on equal terms ; they take their meals together in the same hall ; the women have their own sitting-room and dormitory, containing nine beds ; and the men have their sitting-room and dormitory, containing twelve beds. Patients are admitted for three months, and if, in the opinion of the medical superintendent, a second period of three months is desirable, it is granted; but in all cases six months is the extreme limit.

The great object of this institution, as at present constituted, is to enable the Charitable Aid Boards of the country to send up for treatment a class of patients who would not otherwise be able to avail themselves of the springs, while at the same time in no way interfering with the private enterprise of hotel and boarding-house proprietors.

ANALYSIS AND ACTION OF THE WATERS.

Patients who frequent our springs are always anxious to see the analysis of the waters in which they bathe, and are usually under the impression that they absorb into their systems the entire list of salts enumerated. This is an error. The body cannot absorb any salts from an aqueous solution. If the water, or any portion of it, is allowed to dry on the skin, a minute quantity of the constituent solids, of course, remains, which through the friction of the clothing becomes incorporated with the fatty elements of the integument, and is eventually absorbed. After a course of sulphur baths the underclothing is redolent of sulphur for some time after leaving the springs, and silver carried in the pockets becomes blackened, showing that a considerable amount of sulphur has been absorbed in the manner described. The shipwrecked sailor adrift in a boat finds his thirst relieved for a time by saturating his shirt with sea-water ; if he absorbed the salt his suffering would be only intensified, but the wet shirt by temporarily checking the transpiration and evaporation of moisture from his body affords him relief. The direct influence of hot mineral water used for bathing—apart from the effect of temperature—is twofold, according to its chemical character : it either excites and stimulates the nervous and vascular elements of the skin, as in the case of acid sulphur waters ; or it exercises a soothing and emollient effect, as in the case of alkaline siliceous waters. We should never lose sight of the fact that the skin is the most important emunctory of the body ; and that, as a means of maintaining its normal functional activity, bathing, well-advised and regulated, is the most efficient agent we can employ; and that in skin diseases especially our cures are brought about not by any absorption of fixed salts contained in the water, but by the prolonged maceration of the cuticle, causing the ready removal of the *débris* of dead and diseased cells, and their gradual replacement by cells of a more healthy character, due to the employment of a suitable regimen and the influence of a highly vitalising climatic environment.

PROPERTIES OF THE PRINCIPAL BATH SPRINGS AT ROTORUA.

The following springs are those which have the most valuable properties, and whose therapeutic action is best known:—

1. *Te Pupunitanga*, or "*The Priest's Bath*," at Rotorua, only a few feet from the lake's edge; the water is strongly acidic and aluminous, depositing flocculent sulphur on the bed and sides of the bath; reaction, acid. It is considered the finest and most curative bath in the southern hemisphere. Analysis (in grains per gallon): Sulphate of soda, 19·24gr.; sulphate of potash, traces; sulphate of lime, 7·41gr.; sulphate of magnesia, 3·03gr.; sulphate of alumina, 21·67gr.; sulphate of iron, 1·24gr.; sulphuric acid, 22·12gr.; hydrochloric acid, 3·65gr.; silica, 18·41gr.—total, 96·77gr.; also, sulphuretted hydrogen, 2·98gr.; and carbonic acid gas, 2·16gr. Temperature: From 98° Fahr. to 106° Fahr.; average, 99° Fahr. Special indications: Gout, dyspepsia, sciatica, skin diseases, disorders of the liver, sexual impotence, cold feet, amenorrhœa, dropsy, and all forms of rheumatism.

We have no spring in the district that has attained a higher reputation, or proved itself more generally useful, than that known as the Priest's Bath. The variation in temperature is due to the rise and fall of the lake and the direction of the wind. When the lake is high and the wind blowing towards the baths the conditions are favourable to a high temperature, and *vice versâ*, the cold water of the lake affording a more efficient barrier to the escape of heat than the open pumice-gravel of which the shore is composed. A patient emerging from his bath looks like a boiled lobster, and I regard this determination of blood to the skin as a most important therapeutic factor: the vascular and nervous apparatus of the skin is powerfully stimulated by it, and internal congestions are relieved. Our alkaline waters, on the other hand, which contain the chlorides and silicates of the alkalies, have a soothing and emollient effect on the skin, and are of great value in eczema, and other cutaneous ailments. The water of the Priest's Spring is brilliantly clear when undisturbed, and pale-green in colour. A faint odour of sulphuretted hydrogen pervades the neighbourhood, which gas, together with sulphurous acid, is copiously evolved. Since the eruption of Tarawera this offensive odour has been much modified, owing, I believe, to an increased evolution of sulphurous-acid gas at that time. Fortunately for the nasal organs and general comfort of the bathers, these gases effect a mutual decomposition, resulting in the formation of sulphur and water, thus—$2H_2S+SO_2=3S+2H_2O$; which means that two parts of sulphuretted hydrogen, combining with one part of sulphurous acid, form three parts of sulphur and two of water. Wherever steam charged with these gases is able to penetrate, sulphur is deposited. This is the origin of all the sulphur in the district. It permeates readily the siliceous sinter rock, forming beautiful needle-like crystals of sulphur in the interspaces. Sulphur being thus constantly transformed from the gaseous to the solid state in the water of this spring, it is very possible that, coming into contact with the skin in this nascent and impalpable form, its therapeutic power may be considerably enhanced: there can be no doubt about its absorption, for our patients tell us that their underclothing is redolent of sulphur for weeks after returning home. The Priest's bathing-pavilion is a building 74ft. long by 44ft. wide, having a superficial area of 3,256 square feet. It is divided into male and female departments. Each department comprises two public *piscinæ*, 16ft. by 12ft., with two private baths (each 6ft by 6ft) for special cases, lounging-rooms, and comfortable dressing-rooms. Each bath is provided with a cold fresh-water shower, and douches either hot or tepid, thus materially enhancing the hydropathic efficiency of this remarkable water.

2. *Whangapipiro, or "Madame Rachel's Bath,"* at Rotorua.—Analysis (in grains per gallon): Chloride of sodium, 69·43gr.; chloride of potassium, 3·41gr.; chloride of lithium, traces; sulphate of soda, 11·80gr.; silicate of soda, 18·21gr.; silicate of lime, 4·24gr.; silicate of magnesia, 1·09gr.; iron and alumina oxides, 2·41gr.; silica, 5·87gr.—total, 116·46gr. in one gallon; also, carbonic acid gas, 3·79gr. Temperature: Formerly 174° Fahr., but rose to 194° Fahr. after eruption in June, 1886. Special indications: Diseases of the skin, especially psoriasis. By internal administration (whereby an increase in the elimination of urea and uric acid is produced) in rheumatism, gout, and certain forms of dyspepsia.

The "Rachel" bathing-pavilion adjoins Te Pupunitanga, or "The Priest's Bath." Here we have a water diametrically opposite in character to the last described—an alkaline siliceous water, having a temperature at its source of 180°. This source is a cauldron of enormous depth, situated some 200 yards from the bathing-pavilion, and yielding 50,000 gallons daily. We have a simple system of cooling by which the water may be used at any desired temperature. Here also is a separate department for either sex, each containing a public *piscina* 16ft. square, four private baths, a lounging- or waiting-room kept at a constant temperature of 70° by hot-water pipes, and dressing-rooms. The reaction of the water is alkaline, and it contains a small amount of sulphuretted hydrogen. The delicious sense of *bien-être* produced by bathing in this water, with the soft satiny feeling it communicates to the skin, must be felt to be appreciated. It is useful in all forms of skin-disease—indeed, in eczema it may be considered specific if continued long enough, together with a suitable regimen. I frequently recommend the internal use of this water. Its taste is not unpleasant, and its action is mildly antilithic. Waters containing silicates are said to be useful in the uric-acid diathesis, and I have certainly found it suit gouty patients admirably.

3. *Oruawhata*, or "*The Blue Bath*," within the Rotorua Hospital grounds, a large reservoir, built of concrete, 36ft. by 20ft., provided with hot- and cold-water douches and showers. This water is of saline character with silicates. Analysis (in grains per gallon): Chloride of sodium, 60·44gr.; chloride of magnesium, 1·04gr.; sulphate of lime, 5·48gr.; silicate of magnesia, 0·32gr.; silicate of soda, 8·38gr.; silicate of iron oxide, 1·42gr.; silica, 14·20gr.—total, 91·28gr. in one gallon. Sulphuretted hydrogen, 5·52gr.; carbonic acid, 2·21gr. Temperature: 140° Fahr. Special indications: Almost identical with those of the foregoing spring (Whangapipiro).

The Blue Bath is a warm swimming bath 62ft. long by 24ft. wide. It is built of stone and concrete, with a smooth surface of Portland cement, has a depth of from 4ft. 6in. to 3ft., and contains about 30,000 gallons of water, maintained at a temperature of 98°. This is the popular pleasure-bath of the Sanatorium, in which our rheumatic invalids are able to take exercise without undue fatigue. It was completed in 1885, and opened by Mr. George Augustus Sala. While excavating this bath the workmen struck upon a remarkable sulphur-cavern, its roof and sides thickly coated with brilliant acicular crystals of sulphur, and at its base a hot-spring yielding steam so strongly impregnated with sulphur-gases as to be quite irrespirable. This we have conducted to the surface, and employ as a sulphur-vapour bath, diluting it as occasion requires with steam of a milder character. In sciatica, and all forms of rheumatism, this is one of our most popular and efficacious remedies.

4. *Cameron's Bath* (known as "*Laughing-gas Bath*"), within the Rotorua Sanatorium Reserve, a quarter-mile from the bath-pavilion, on the shores of Lake Rotorua, at a point called Te Kauwhanga. It is a muddy pool 30ft. in diameter, with a constant discharge of gas (sulphuretted hydrogen, with sulphurous acid), which, when inhaled, causes faintness and great excitement of the respiratory and vascular functions. The pool has no outflow; the water is a dirty chocolate colour, hepatic, feebly saline, and has a persistent acid reaction and offensive odour. Bathing in the spring itself is to be deprecated. Analysis (in grains per gallon): Sulphate of soda, 44·54gr.; chloride of potassium, 1·67gr.; chloride of sodium, 12·04gr.; chloride of calcium, 5·22gr.; chloride of magnesium, 1·28gr.; chloride of aluminium, 0·62gr.; silica, 9·22gr.; hydrochloric acid, 5·92gr.—total, 80·51gr. in one gallon. Sulphuretted hydrogen, 4·42gr. Temperature: 109° Fahr. to 115° Fahr.

5. *The Pain-killer Bath*, situated at Te Kauwhanga, resembles the above water (No. 4), but is a little more saline and hepatic; it is one of the most valuable sulphurous springs in the reserve

The water has a distinct acid reaction, an offensive odour, and deposits a brownish sediment on being boiled. This spring has great curative properties, and two baths with sheltered dressing-accommodation have been built in connection with it. Analysis: Chloride of sodium, 46·42gr.; chloride of potassium, 1·71gr.; chloride of calcium, 2·66gr.; chloride of magnesium, 1·47gr.; chloride of iron and aluminium, 4·22gr.; sulphate of soda, 29·14gr.; hydrochloric acid, 6·84gr.; silica, 18·02gr.—total, 110·48gr. in one gallon. Sulphuretted hydrogen, 4·84gr. Temperature: 204° Fahr.

6. *The Coffee-pot*, also situated at Te Kauwhanga, a small mud spring, 10ft. in diameter; the water is thick, brown, and muddy, covered with an oily slime, in fact, of a most uninviting appearance; it has a persistent acid reaction and an offensive odour; hepatic and feebly saline. Analysis: Silica, 13·86gr.; sulphate of soda, 23·71gr.; chloride of potassium, 0·77gr.; chloride of aluminium, 1·46gr.; chloride of calcium, 2·04gr.; chloride of magnesium, 1·62gr.; chloride of iron, 1·47gr.; hydrochloric acid, 7·66gr.; sulphuric acid, 7·60gr.—total, 60·19gr. in one gallon. Sulphuretted hydrogen, 3·19gr. Temperature: 80° to 100° Fahr. Special indications of the last three baths (Nos. 4, 5, and 6): Chronic rheumatism and gout, chronic rheumatoid arthritis, cutaneous diseases.

7. *Hinemaru* ("*Stonewall Jackson*" or "*McHugh's Bath*"), situated in the Rotorua Sanatorium Reserve. The water is of a yellowish colour, of a saline character, with silicates; reaction, alkaline. Analysis: Chloride of sodium, 93·46gr.; chloride of potassium, 4·69gr.; chloride of lithium, traces; sulphate of soda, 2·76gr.; mono-silicate of soda, 6·41gr.; silicate of lime, 2·89gr.; silicate of magnesia, 1·02gr.; iron and aluminium oxides, 2·10gr.; silica, 8·29gr.—total, 121·62gr. in one gallon. Temperature: From 98° Fahr. to 118° Fahr. Special indications: Cutaneous diseases, rheumatism; if filtered, suitable for internal administration in atonic dyspepsia and the uratic diathesis (dose, one tumbler thrice daily between meals).

The above analyses were made in 1881 and 1882, and a re-analysis was made in 1893 by the Government Analyst, who reports as follows: "These results show that some changes have taken place in the constitution of several of these waters since their analysis in 1881 and 1882—that is, prior to the volcanic eruption of Tarawera. The 'Painkiller' spring has evidently acquired quite a new character, being an alkaline in place of an acidic water. The Hinemaru Spring (McHugh's Bath) contains a little less chloride of sodium than formerly, and more silica, while Rachel's Spring contains a little less of the alkaline sulphate. These facts are interesting, but, with the exception of the total change of character of the 'Painkiller' water, nothing has been elicited to show that any of them have changed so much as to seriously affect them for the medical purposes to which they have hitherto been applied." This should reassure those who may have been led astray by a report—diligently circulated by certain interested individuals—that our springs are weaker and less efficacious than formerly. It is true that there is no spring in the district so erratic in its temperature and density as the Priest's Bath, but, fortunately, temperature and density are not its most important therapeutic factors. The analysis of 1893, as compared with that of 1881, shows that there has been a falling-off in certain of its negative ingredients, but the curative properties of the water are maintained by an actual increase in two, at least, of its more positive constituents—free hydrochloric acid and sulphuretted hydrogen. No one has a better opportunity of judging of the physiological and curative effects of this water than I, who, for the last eleven years, have had the advantage of daily observation, and my deliberately expressed opinion is, that the water of the Priest's Bath is as powerful a skin stimulant and as valuable a curative agent as it was eleven years ago.

ANALYSES OF FIVE NEW SPRINGS.

Perhaps the most interesting information offered in this report is the first analysis of five new springs which have lately been brought into notice, owing to the overcrowding of the Priest's and Rachel Baths. No doubt they will shortly be brought under the control of the Government authorities, as part of the Sanatorium Reserve, and suitable bathing accommodation built. They are as follows:—

(1.) *Matuatonga, or "Corlett's Bath."*

	Grains per Gallon.
Chloride of sodium with a little potassium ...	66·44
„ calcium	6·72
„ magnesium	0·31
Sulphate of lime	10·32
Carbonate of lime	0·21
Alumina	Trace
Soda silicate with a little carbonate ...	29·27
	113·27
Sulphuretted hydrogen	2·21

This water is very similar to the Rachel Spring, and calculated to fulfil similar therapeutic indications. Being situated some thirty or forty yards from the new sulphur baths, and at an elevation of about 8ft. above them, the water of this spring may be easily led into the baths. This would give us as complete an arrangement as is at present afforded by the Priest's and Rachel Baths; and, as regards showers and douches, the necessary power will be readily obtainable from the cold water main, which is within reasonable distance.

(2.) *Toko, or "The Postmaster's Bath."*

	Grains per Gallon.
Sulphate of soda ...	45·09
" potash	0·41
" lime ...	2·45
" magnesia	0·30
" alumina	1·34
Iron oxides	0·71
Sulphuric acid (free)	17·86
Hydrochloric acid (free)	7·40
Silica ...	10·11
	85·67
Sulphuretted hydrogen	5·69

This is a strongly acidic water, fulfilling all the therapeutic indications of the Priest's Spring.

This spring has died out since the excavations were made for the new sulphur baths.

(3.) *Waikupapapa, or "The Saddler's Bath."*

	Grains per Gallon.
Sulphate of soda ...	33·18
" potash	0·26
" lime ...	2·44
" magnesia	0·24
" alumina	0·32
Iron oxides	Trace
Sulphuric acid (free)	4·29
Hydrochloric acid (free)	7·49
Silica ...	8·23
	56·45
Sulphuretted hydrogen	3·61

This is an acidic water, similar to the foregoing, but less stimulating, and consequently more suitable for delicate skins.

(4.) *Ngaruapuia or "The Gemini Bath."*

	Grains per Gallon.
Sulphate of soda ...	29·80
" potash	0·64
" lime ...	6·87
" magnesia	0·31
" alumina	...
Iron oxides	Trace
Sulphuric acid (free)	3·11
Hydrochloric acid (free)	6·76
Silica ...	12·01
	59·50
Sulphuretted hydrogen	Traces.

This is a valuable acidic water, less astringent and stimulating than the foregoing, from the fact of its containing less free acid and more silica, and is, in many cases of skin disease, a most desirable intermediate water between the soothing alkaline waters and the more powerful waters of the acid type.

(5.) *Waikirihou, or "The Vaux Spring," Supplying the New Sulphur Baths.*

	Grains per Gallon.
Sulphate of soda	32·87
„ potash	1·24
„ lime	4·93
„ magnesia	1·83
„ alumina	33·22
Iron oxides	4·42
Sulphuric acid (free)	30·32
Hydrochloric acid (free)	6·14
Silica	17·61
	132·58
Sulphuretted hydrogen	3·02

This is the strongest acidic water in the district, and most valuable as a local application to rheumatic or injured joints, but, for immersion of the whole body, requiring the greatest care and caution. Its action is that of a modified mustard-plaster, producing a strong determination of blood to the surface, the redness remaining much longer than that caused by the Priest's Bath. The cause of this will be seen on comparing the amount of free acid in the two waters. It is not a water to be trifled with; and patients with weak hearts or delicate skins will do well to take advice before using it.

The latest discovery with regard to the therapeutic power of this water is, that it abolishes the craving for alcohol. If I had heard this from one or two individuals only I might have disregarded it, but hearing it commented on almost daily, I have taken the trouble to look up the cases. Two of these were very aggravated examples of inebriety, whose acquaintance I first made in the Court-house, where I found myself under the painful necessity of fining each of them the usual 5s. and costs. They assure me that they find themselves new men since bathing in these sulphur baths, and have lost all taste and desire for liquor of every kind. Three other patients of mine, to whom I found it necessary to advise total abstinence, corroborate this testimony, stating that they have felt no craving for stimulants since using the baths. They are very enthusiastic in the matter, and think that an asylum for inebriates should be established here at once. No doubt the craving for alcohol is kept up by a congested state of the mucous membrane of the stomach, so that the *modus operandi* of these waters is not far to seek; the congestion is relieved by the powerful determination of blood to the skin. In like manner hæmorrhoids are cured by our acid waters, from the relief afforded to a congested liver. This should be good news for the Prohibitionists; and in the event of their floating an inebriate asylum company, I shall expect to be remembered in the distribution of promoters' shares.

The Whakarewarewa Baths.

At Whakarewarewa, two miles from Rotorua, there are two springs which have a well-merited reputation.

1. *Turikore*, or the "*Spout Bath*."—This water is in great repute among the Maoris for the cure of cutaneous diseases, rheumatism, lumbago, sciatica, and kidney complaints. It is of a sulphurous character, and has a faintly acid reaction, which changes to alkaline on boiling the water. Analysis: Silicate of soda, 16·32gr.; silicate of lime, 1·61gr.; silicate of magnesia, 1·14gr.; silicate of iron, 0·39gr.; sulphate of soda, 13·47gr.; chloride of potassium, 1·24gr.; chloride of sodium, 53·61gr.; phosphate of alumina, traces—total, 87·78gr. in one gallon. Temperature: 96° Fahr. to 120° Fahr. Special indications: Cutaneous diseases, lumbago, chronic rheumatism, local palsy of muscles.

2. *Koroteoteo*, or the "*Oil Bath*."—This water is alkaline and slightly caustic. Analysis: Mono-silicate of soda, 2·08gr.; mono-silicate of lime, 3·16gr.; mono-silicate of magnesia, 0·76gr.; mono-silicate of iron, 0·85gr.; sulphate of soda, 7·49gr.; chloride of potassium, 1·46gr.; chloride of sodium, 66·34gr.; chloride of lithium, traces—total, 104·54gr. in one gallon. Temperature, 212° Fahr. Special indications: Cutaneous diseases.

Cases suitable for Treatment.

The selection of cases suitable for treatment at Rotorua is a most important matter. I am aware that there is a strong tendency both with physician and patient to try anything as a *dernier ressort*. It is a serious matter, however, to put a patient to the trouble and expense, and possibly pain, of making a long and weary journey, to rob him of the comforts of home and the society of his friends, without at least some reasonable hope that his labour will not be thrown away.

The two most important questions to be answered before deciding to send a case to Rotorua are—(1) Has the patient sufficient strength to bear the journey? and (2) is the case one likely to benefit by the treatment? With regard to the first question, it must be remembered that the long thirty-four miles coaching journey over a bad road is a thing of the past. The railway now gives through communication with Auckland, within a little over ten hours. Still, a ten hours' railway journey will not be accomplished by an invalid without some fatigue, and possibly increase of pain, but if there be sufficient vitality to render such inconvenience a matter of mere temporary concern only, it is no insurmountable barrier. Nor need the partial or even total loss of the patient's locomotive power prevent his coming. We have many instances on record of patients who on arrival required the aid of crutches, or had actually to be carried to the bath, and yet went away enjoying the full use of their limbs. In considering the second question, medical men will not need to be reminded that where profound organic structural change exists very little benefit can be expected, so that considerable discrimination must be exercised in selecting cases of paralysis for treatment. Where nerve-elements are extensively destroyed hot water has no regenerating power that I am aware of. The same may be said of osteo-arthritis or chronic rheumatic arthritis, with structural change and great deformity of the joints. Such cases may improve in general health, gain weight, and lose pain, but there the improvement ends. Our treatment is contra-indicated in phthisis as long as active destructive change is going on in the lungs. Certain chronic *poitrinaires*, however, pay us periodical visits with advantage.

PARAPLEGIA CURED.

Primary functional paralysis, in which there is reason to believe that the nerve-centres have undergone no organic change — such paralysis, for example, as may be induced by depressing morbid influences, as malaria, influenza, sexual excesses, mental or physical fatigue, exposure to wet and cold, alcoholism, or hysteria—are likely to benefit by treatment at Rotorua.

Several cases in point are given in the New Zealand Year-book for 1893. Two illustrative cases will be sufficient to quote here.

H. C., a bushman, aged twenty-three, had become completely paraplegic, presumably from exposure to wet and cold. He had been for many months dependant on a Charitable-aid Board, which sent him to Rotorua. For three weeks he was carried to his bath, at the end of which time he was able to stand alone. At the end of five weeks he could walk with two sticks, and ride on horseback. In three months he was as well as he had ever been in his life.

The wife of a Native chief from the Napier district was brought here for treatment at the beginning of March last. Two years ago she was thrown from a buggy and suffered concussion of the spine, this resulted in complete paraplegia with paralysis of the sphincters. She was unable to stand; her general health was excellent, and there was very slight muscular atrophy. After six weeks' treatment —chiefly at the Whakarewarewa Springs—she is able to walk with the aid of two sticks, and is fast regaining control of the bowel and bladder. I have little doubt she will make a perfect recovery.

RHEUMATISM AND SKIN-DISEASES.

Rheumatism and skin-diseases, and these usually in a very chronic form, furnish fully 75 per cent. of the cases we are called upon to treat. In all forms of rheumatism and rheumatoid arthritis we have much success, especially where arthritic degeneration is not too pronounced. Hot acidic sulphur-baths at a temperature not exceeding 104°, or sulphur-vapour up to 115°, taken twice daily for a carefully regulated time, according to individual tolerance—which we find to vary greatly—forms our routine treatment. These waters redden the skin, and cause some tingling sensation for an hour or two. Occasionally some irritation of the skin occurs, which is readily allayed by a few warm alkaline showers or douches. In those numerous and well-known cases of chronic hip-rheumatism, often due to injury, we find nothing so efficacious as the hot douche. The beneficial result is due partly to the quality of the water, and largely to its mechanical action: fortunately, our arrangements are so complete that we are able to vary the temperature and percussive power of the douche at will. We are able to quote several cases of cure even where a considerable amount of fibrous anchylosis has existed. If the rheumatic patient progresses favourably under the bath-treatment alone, neither medicines nor electricity are employed, but if after a few weeks his progress is not satisfactory we find galvano-faradism a valuable adjunct. Usually thirty cells are put into circuit with a faradic machine, and the double current applied in the labile manner to the parts affected for fifteen minutes daily. We find this answers better than either current alone. In cases of muscular atrophy faradism is resorted to from the commencement. Massage is also occasionally of use.

GREAT SUCCESS IN CASES OF SKIN-DISEASE.

Perhaps there is no class of diseases in which we meet with more uniform success than those affecting the skin. The solid and gaseous constituents of the waters are no doubt important; but I have more confidence in the influence of change, and all that it implies in its effect on both mind and body, combined with the prolonged maceration of the cuticle, and the constant exposure of the skin to air and light which frequent bathing entails. General eczema, which may have resisted every form of treatment for years, is generally cured in a period varying from six to thirteen weeks if the patient is willing to submit himself to rigorous medical discipline. The same may be said of psoriasis,—at least, as far as its disappearance for a longer or shorter period is concerned. It is rare indeed to see psoriasis completely eradicated. For ringworm and the impetiginous eczema of children the water of the Priest's Spring is a specific. In sycosis epilation is necessary, after which our alkaline waters complete the cure.

We have had great success during the past year in the treatment of skin diseases. Several cases of general eczema have been completely cured in the Sanatorium, and I have at present a female patient about forty years of age presenting the worst example of chronic psoriasis I have yet seen. When she arrived, three months ago, her body was covered with large blood-red patches of psoriasis, so infiltrated and thickened as to raise them above the level of the surrounding skin. This state of things had existed several years.

I tried the new thyroid remedy with her, but found she could not bear the constitutional disturbance it caused. She has had the usual routine treatment, with two Priest's baths daily, and I shall have the pleasure of discharging her in a few days without a vestige of her trouble remaining. In another case—one of lupus erythematosus of the face—the thyroid treatment agrees, and the patient, who has been with us four weeks only, presents a greatly-improved appearance. In these cases we do not pin our faith exclusively to the baths, to the exclusion of all internal medication. However inoperative such treatment may have been at home, we find that, in conjunction with the new environment, rest, change of air and scene, with the baths, such treatment is of the greatest use. Patients frequently decline to take medicine, saying that they have exhausted the Pharmacopœa, and have come to Rotorua to try the baths as a last resource, but have little faith in them. Such cases are discouraging. It is difficult to engraft an improved physical state on a hopeless mental condition.

NEURALGIA.

Neuralgias, as a rule, do remarkably well. Patients suffering from sciatica are a numerous class with us, most of them presenting a very chronic history. When the disease is not distinctly associated with the gouty or rheumatic diathesis, is not of long standing, and has been caused by exposure to cold, it is very quickly cured. A few baths relieve the pain, and there is rarely any stiffness or weakness remaining. Chronic cases are not so easily dealt with—they require great patience and perseverance on the part of both physician and patient. Our routine treatment consists of hot baths, sulphur-vapour, the douche, and galvanism. After six or eight weeks it often happens that nothing remains to remind the patient of his old enemy, beyond some slight weakness or soreness of the limb, and I usually advise him to try a week's sea-bathing on his way home. In order to accomplish this he should arrive in Rotorua not earlier than September or later than February. We have had some good results in the treatment of cervico-brachial neuralgia. An interesting case is detailed in the last Year-book.

A man about fifty years of age presented himself a few weeks ago suffering from a spasmodic neuralgia of the facial nerve. Any movement of the jaws, as in eating, yawning, putting out the tongue, and even sometimes in speaking, brought on a paroxysm, lasting, fortunately, only a few seconds, but evidently agonizing; in fact, his life was a burden to him. After four weeks' persistent bathing, with iron and arsenic internally (which no doubt he had taken before) he left cured.

CURATIVE EFFECTS OF MINERAL WATERS.

To enumerate every ailment in which our thermal springs have proved useful would prolong this paper indefinitely. Suffice it to say that in many cases their healing power has been discovered accidentally. Many women bathing for rheumatism have found themselves cured of chronic metritis and leucorrhœa, and as a result of such cures have proved fruitful after years of sterility. Congestion of the liver, biliary catarrh, with jaundice and hemorrhoids, have been cured by the acid sulphur waters, which also prove useful as a topical application in ozæna and ulcerated throat. This class of water also tends to reduce plethora and corpulency without prostration, insures healthy action of the skin, and relieves torpor of the bowels.

Ulcerated Throat.

The mention of ulcerated throat reminds me of two most interesting cases which presented themselves recently from the island of New Caledonia. In this island, it appears, chronic laryngitis is common.

The first case was that of a French gentleman engaged in business whose throat ailment was of long standing; he remained with us a few weeks, used the water of the Priest's Spring as a gargle, and as a wet compress to the throat at night, and bathed in the same water twice daily; he left perfectly cured.

The second case was a much more serious one. The patient was a French Roman Catholic priest. He attributed his ailment to excessive use of his voice in preaching, teaching, and singing. He had constant cough, his voice was hoarse and scarcely audible, and there was occasional slight hæmorrhage from the laryngeal ulcers. After pursuing for four weeks the treatment described in the foregoing case, he left very much improved, but by no means well. To my surprise, in a few weeks after his departure he wrote to our Resident Engineer, Mr. Malfroy, stating that to his great delight he found himself perfectly cured, and that he could use his voice in preaching and singing as well as ever he did in his life.

Permanent Benefits realised.

During the past eight years my correspondence with patients proposing to come to Rotorua, and with those who have left after a longer or shorter experience of our bath treatment, has been considerable. No fact has struck me more forcibly than this: that patients who have left greatly benefited, but not cured, almost invariably write to say that, after being a short time at home, they realise the benefit they have derived, and, in most cases, they find themselves permanently cured.

It appears that whatever it is that our patients take into their systems by absorption or inhalation, and whatever may be the influence of change of climate, scene, and occupation, of relaxation and rest, time is required for assimilation, and the true benefit is only realised some time after their return to their former surroundings.

I am glad to find that this experience is not peculiar to New Zealand, but is quite common with those who frequent the spas of Europe.

MASSAGE.

That department of medicine which relates to the discovery and application of remedies to the cure of diseases being known as Therapeutics, it follows that we may appropriately speak of the application of thermo-mineral waters to the cure of diseases as balneo-therapeutics, of massage as masso-therapeutics, and of galvanism as galvano-therapeutics. Now, any one writing in this day on balneo-therapeutics could scarcely afford to ignore the subsidiary agencies of galvanism and massage. I say subsidiary advisedly; since both find their truest value and highest use as adjuncts to bath treatment, bathing diminishing the resistance of the skin to the galvanic current, and by its emollient influence greatly assisting the manipulations of the masseur. We hear a good deal now-a-days about massage, there is scarcely a spa in Europe where it is not practised. Aix les Bains appears to be its headquarters. Some of these who desire to be considered professors of the art are too apt to represent it as a panacea for all human ills, and so mislead the unwary. It is desirable, therefore, that the general public should get some definite idea of its real worth. The following is what a lecturer on therapeutics at the Westminster Hospital, and examiner in *Materia Medica* to the Royal College of Physicians of London, says about it: "By masso-therapeutics I mean the scientific aspect of the subject; massage, that is, simply as a therapeutic agent, and not massage as a means of earning a living, or as a modified form of hotel-keeping. It must be admitted that many people regard massage and all that appertains to it with a good deal of suspicion, and not without reason. The difficulty is, not that massage fails to receive the credit to which it is entitled, but that it is employed in a number of cases for which it is unsuited. No discrimination is exercised, but its use is advocated for all sorts of chronic ailments. This is a grave mistake, and greatly to be deplored. The work is too often carried on by people who know little or nothing about it, and have not mastered even its most elementary details. They regard it as a special system of treatment, whereas, in reality, it is only one of a number of therapeutic agents at the disposal of every physician. They practise without knowledge, and often do incalculable harm. It is not pleasant to hear of an aneurism or an ulcer of the stomach being ruptured by the efforts of a too zealous rubber; and such mishaps are not unfrequent. The so-called *masseur*, or *masseuse*, who goes about the country armed with a 'certificate,' which is simply a receipt for money paid, is an abomination, and has been the means of bringing a legitimate mode of treatment into disrepute."

For these reasons we have been shy of giving encouragement to unknown persons desirous of practising massage at Rotorua. We have long recognised the desirability of having a thoroughly competent *masseur* established here: the difficulty has been to secure the services of a man who has had the necessary training and experience. A trained operator has, however, lately been here, and the want will, I trust, be soon supplied.

MAGNITUDE OF RESOURCES.

There are two questions which are perpetually propounded by visitors to Rotorua. The first is usually put in this way: "How is it that the Government of New Zealand does not advertise these springs? Little or nothing is known of them in Australia, or America, or England (or wherever the questioner happens to hail from). I should not have been here, but that I heard, quite casually, that a friend of mine had been cured here; and if I am cured I shall be able to send you dozens of patients." My usual reply is: "We believe that good medical work will advertise itself, and your remarks confirm the assertion. It is evident you believe in your own advertising power, and so do we. It will be quite time enough to spend money in advertising when we find that our bathing-accommodation is in excess of the demand made upon it; at present it is barely equal thereto. At the same time our resources are practically unlimited. We have one spring in Ohinemutu estimated to discharge not less than a million gallons daily, which means that it is capable of supplying 10,000 baths daily of 100 gallons each. This is at present running to waste. At Whakarewarewa there is a spring almost, if not quite, its equal. Should the time ever come when these springs are not equal to the demand made upon them we have the Waiotapu Valley to fall back upon, which is surely destined in the future to be the centre of the Thermal-springs District of New Zealand. Immense as our resources are at Rotorua, they sink into insignificance when compared with those of the Waiotapu Valley."

COMPARISON OF THE ROTORUA SPRINGS WITH THOSE OF EUROPE.

The second question usually takes this form: "How do your springs compare with those of Europe?" This is a much larger and more interesting subject. The first fact that strikes the inquirer is this: that cold mineral spas, of high therapeutic value as internal remedies, are abundant in Europe, whereas they are rare in New Zealand. In the Rotorua district our mineral waters are all hot, and more suitable for bathing than for internal administration. It does not necessarily follow that because a water is hot it is unfit for internal use. The water of our Rachel Spring is an admirable dietetic-water for gouty and dyspeptic patients, used either hot or cold; and a spring has recently been discovered at the head of Lake Roto Ehu containing, in spite of its high temperature, a large amount of carbonic-acid gas, which holds in solution a good deal of carbonate of iron. After keeping a sample of this water securely bottled for about three weeks, I sent it to a chemical friend for examination. His report was as follows: "On opening the bottle of 'iron-water' from Roto Ehu I found a good deal of free carbonic-acid gas, the water effervescing briskly like ordinary soda-water; it contained what was equivalent to 172 cubic inches per gallon. Of course this estimate is not to be relied on, as it would only represent a part of the gas contained in the water direct from the spring. There is more iron than I thought would be in it. This most probably exists in the water as ferrous carbonate dissolved in the carbonic acid. It resembles the European water of Pyrmont, with this difference, that it contains more chlorine and silica. As far as I have gone I find the water to contain, in grains per gallon: Chlorine, 11·2; lime (CaO), 12·74; magnesia, 1·177; silica, 10·266; iron (FeO), 1·177—total solids per gallon, 36·560; carbonic acid, 172 cubic inches." This spring has an enormous outflow, and is destined to be of great value in the future both for external and internal use.

The next fact that strikes the inquirer is this: that the thermal springs of the Rotorua district contain a far smaller amount of dissolved salts than those of Europe. The difference amounts to 7 to 1 in favour of Europe. If we take the mean of the total solids in grains per gallon of the nine springs first enumerated, we find that they amount to 96·51gr. only, whereas if we take any nine European springs at haphazard—say, Vichy, Ems, Baden Baden, Marienbad, Seidlitz, Wiesbaden, Saltzbrunnen, Kreuznach, and Leuk—we find that their dissolved constituents amount to 708gr. per gallon.

Fortunately, the therapeutic efficacy of a thermal spring is not to be measured by the quantity of fixed salts it may contain. It would be a fortunate thing, of course, if we could discover in our district a cold mineral spring like that of Hunyadi-Janos, in Hungary, of which a wineglassful is an efficient aperient; but we can scarcely expect this in a volcanic region like ours. The so-called "chemically-indifferent springs," such as Gastein and Wildbad, in Germany, contain absolutely less mineral matter than our ordinary drinking water. Thus, the New River water contains 2½gr. of solid matter to the pint, the East London Company 3gr., and that supplied by the Hampstead Company 4½gr. Yet these waters cause no apparent effect, whilst the springs of Wildbad, with 3½gr. of salt to the pint, and Gastein with 2gr., are capable of producing therapeutic results mainly due perhaps to the temperature at which they are employed. The chemically-indifferent baths, especially the cooler ones, possess peculiarly sedative effects, not only allaying nervous irritation, but also diminishing vascular excitement, whilst the warmer springs of the same class, being more stimulant, are chiefly used in aggravated cases of chronic rheumatism and rheumatoid arthritis. One important fact has been definitely established by experiment,—whatever may be Nature's secret in the preparation of these remedies, it can never be discovered by science or imitated by art. We must be content, therefore, with the empirical knowledge that certain mineral waters produce certain effects.

There are other salient points of difference between our springs and those of Europe. Our waters contain abundance of silica and silicates, and little or no lime, while those of Europe contain abundance of lime, and little or no silica or silicates. Our district appears to be one in which silica takes the place of lime, the latter being almost a chemical curiosity.

Another curious fact is that hepatic or sulphurous waters, characterized by the presence of sulphuretted hydrogen and free sulphuric acid, as in the case of the Priest's Bath, are abundant here, but absolutely unknown in Europe. The one sole point of resemblance—common not only to Europe and New Zealand, but to all thermal springs in the world—is the prevalence of chloride of sodium (common salt) as a leading ingredient.

The Surroundings of Rotorua.

The Rotorua district enjoys the patronage of three classes of visitors: the tourist, the invalid-tourist, and the invalid proper. The question of common interest to them all is, What have they to do, and what have they to see when they get there? The best thing we can do for the tourist is to provide him with a local guide-book, and then transfer him into the hands of a guide. The most delightful trip he can take in fine weather—say from December to March—is to join a party, and do the round of the lakes.

Crossing from the old township of Ohinemutu in a steam-launch, he will first visit the Island of Mokoia, in the centre of Lake Rotorua; thence to the beautiful cold spring of Hamarana, one of the most charming picnicking spots in the district; thence through the Ohau Creek into Lake Roto-iti; here he would do well to camp for the night, and spend the following day in exploring the cosy bays and inlets with which the lake abounds, and visiting the hot spring of Manapirua, and the waterfall and hot springs in the neighbourhood of Taheke.

Crossing over to the western shore of the lake, and landing at Tapuaeharuru, a short walk of a mile or two will bring him to Lake Roto Ehu. Crossing this in a canoe, he will find the hot iron spring already alluded to, and may readily convince himself of the presence of iron in the water by attempting to make tea with it, or using it to dilute his brandy.

Another walk of a mile will disclose one of the loveliest lakes in the district, Lake Roto-Ma. The general consensus of opinion is, that this lake is a vision of beauty, which every visitor lingers round as long as possible and leaves with regret. This trip shows the visitor the Paradise of the district: he will find the Inferno at Tikitere. When George Augustus Sala visited this spot some seven years ago, he called it at once "Hell's Gates." It is certainly a most weird and awe-inspiring place. The steam rising from its boiling pools and mud-geysers is a never-failing landmark seen from every point of the Rotorua basin. The hydro-thermal action is so powerful at this spot that the visitor feels the earth vibrating under his feet; and yet, in spite of these dismal horrors, invalids—ladies even—will spend weeks here in order to get the benefit of the healing springs, which are justly credited with many most remarkable cures. Tikitere is eleven miles from Rotorua, and the trip may be comfortably made in half a day.

The next point of interest for the tourist is the Wai-o-Tapu Valley, distant from Rotorua some twenty miles. Leaving his hotel after an early breakfast, say at 7 a.m., the visitor may see the chief points of interest in the valley, and return in time for dinner at 6 p.m., but only to regret the inadequacy of a one-day's visit to fully inform himself of the wonderful resources of this remarkable district.

TARAWERA.

Perhaps there is no more enjoyable trip for the young and strong than the journey to Tarawera Mountain, the scene of the eruption on the 10th of June, 1886. A ride of ten miles on horseback brings the visitor to the buried village of Wairoa; thence a voyage by boat some nine miles, across Lake Tarawera, lands him at the foot of the mountain. The ascent will occupy an hour and a half, and having arrived at the summit, he cannot but feel well rewarded for his toil. No verbal description can possibly convey an adequate idea of the scene of devastation and desolation which this standpoint reveals.

The best advice we can give to the invalid tourist is to attend to business first and pleasure afterwards. If he really wishes to derive benefit from the hot springs, he must not bathe irregularly on the advice of Dick, Tom, and Harry; taking a long fatiguing journey one day, and possibly three hot baths the next, and then wondering how it is that he feels so limp and exhausted: this kind of thing will only disappoint him, and do no credit to the springs. He may very well spend the first three weeks of his visit in bathing systematically, filling up his intervals of leisure by visiting places of interest near his hotel or boarding-house—and there are many, though usually neglected because they are so easy of access.

THE ROTORUA BASIN AND ITS SURROUNDINGS.

Not one in twenty of the visitors staying at the Lake or Palace Hotels takes the nearest route across the Pukeroa Recreation Reserve to the Government baths; and yet from this spot a most magnificent panoramic view of the whole Rotorua basin, 80,000 acres in extent, may be obtained. Standing on the highest point, and looking towards the north, the visitor sees spread out before him the tranquil beauty of Lake Rotorua—20,000 acres of water, with the lofty volcanic island of Mokoia in its centre. The lights and shadows on the surrounding hills, the cloud scenery reflected in the water, the white cliffs to the north and north-east gleaming in the sunlight, the steam column rising from Tikitere, the bluff of Wahanga—the most northerly point of the Tarawera Range—just peering above the intervening hills, and in the foreground the Maori village and the English Church on a promontory jutting into the lake, form a picture which would certainly delight the artist, who usually sees when he looks, if not the tourist, who too often looks without seeing. Turning to the south and south-west, I know of no prospect more

Taupo and Volcanic Mountains.

lovely on a calm summer's evening at sunset. The steam columns of Whakarewarewa are thrown into relief by the dark background of hills, and through the Hemo Gorge a glimpse is caught of the deep blue Paeroa Ranges in the extreme distance. In the west is the bold bluff of Paparata, with its sky-line clothed with forest, through which the setting sun throws a flood of crimson light, making it look like a veritable bush on fire. North of west is the Ngongotaha Mountain, rising 1,600ft. above the level of the lake, from the summit of which may be seen on a clear day the Bay of Plenty, with its numerous islands, and inland the snow-capped mountains of Ruapehu and Tongariro.

Whakarewarewa.

At Whakarewarewa, only two miles from Rotorua, the visitor will find an epitome of all that the neighbourhood contains; hotel and bathing-accommodation, geysers, hot springs, boiling pools, mud volcanoes, hot waterfalls, and siliceous terrace formation. It will interest the visitor to know that in our Thermal-springs District exist the only geysers in that British Empire on which the sun is said never to set. Geysers are found in the Yellowstone Park, in Iceland, and in Thibet. Of the latter we know very little, but geologists tell us that, of the geysers of the world, those of the States of Wyoming and Idaho are the oldest, those in New Zealand the next in age, and, strange to say, those of Iceland, with which most of us were first acquainted, the youngest.

It will be seen, therefore, that the invalid tourist has plenty to interest him close at home, without interfering in any way with a profitable use of the numerous hot springs at his disposal.

The Geyser at Orakeikorako.

This geyser broke out in June, 1893, and occasioned a profound sensation in the district. Those who have seen it declare it to be the most wonderful and astounding phenomenon in New Zealand, and, for power and grandeur as a geyser, second to none in the world. It has been very appropriately named "the Terrific." The Government on hearing of the outbreak, commissioned our Resident Engineer, Mr. C. Malfroy, to visit and report upon it. To give his report *in extenso* would occupy too much space, but that portion of it which describes the route to be taken in order to reach it, and the eruption he witnessed, will be read with interest:—

Mr. Malfroy's Report to the Surveyor-General, dated July 15th, 1893.

Re *Geyser at Orakeikorako.*

Sir,—I have the honour to report that on receipt of your telegram of the 8th instant I took immediate action and made arrangements for the journey, leaving Rotorua on the 11th for Ateamuri in a buggy, with a Maori to act as guide and interpreter. We arrived in the evening, slept there, and at 7 a.m. on the 12th we started for Orakeikorako on horseback.

We followed the Taupo Road for about two miles and a half, when we turned off to the left into a gully, following a Maori track for about three miles, which took us to the western bank of the Waikato River. This we followed up for about four miles, reaching Orakeikorako at 9.30 a.m. The track is by no means bad, but it is very narrow, overgrown with tussock-grass, and manuka on each side, and cut down deeply by traffic and rain. This renders travelling very slow. It could, however, be made into a good horse-track at a small cost; but from information gathered I am led to believe that a shorter and more attractive and interesting road could be made to Orakeikorako by following the south-west bank of the Waikato all the way from Ateamuri. It would pass by the Rainbow Falls and the several rapids of that part of this beautiful river, and open up a country which, judging from the abundance of tussock-grass, should be well adapted for general grazing purposes.

The Geyser is situated on the Tutukau East Block, on the south-west bank of the Waikato River, about ten chains from the said river, and the same distance in a northerly direction from the nearest whares of the native village. It is at the foot of a clay-bank and the upper end of an old silica terrace formation of a light salmon-colour, two or three acres in extent, and reaching down to the river-bank. It is fifty yards in a north-west direction from the old *ngawa* known as the Orakeikorako Pool, which latter has become quiescent since the abnormal eruption of the geyser started, about the middle of June last. The actual geyser spring consists of an oystershell-shaped basin, 12ft. to 15ft. long and 6ft. to 8ft. wide, starting from nothing at the outer edge to about 5ft. deep at the geyser end, with two well-defined apertures, one a vertical hole, about 12in. in diameter, now blocked up with two large stones silicated fast into it; the other is an horizontal fissure 18in. long by 4in. or 5in. wide, emerging into the vertical hole almost at a right angle at a depth of about 4ft. below the level of the terrace formation. and just above the obstruction of the vertical geyser-pipe.

The Native ferryman, Watene, told us on our arrival that the last eruption took place at about 4 o'clock a.m., and that it would play again about noon. Arriving at the geyser basin at 10 a.m., we found it full, and the water flowing out gently through an old drain cut in the silica formation years ago, into a second basin, which has also gone cold since this new geyser action started, and the water of which seems to leak out during the period of the geyser's quiescence. This outflow continued for an hour and a half, increasing gradually. The water in the geyser basin then began to boil up, first slowly, then more and more fiercely, for about half an hour, when the first phase of the eruption started. The steam or eruptive force coming out of the side fissure heretofore described, with great force, ejected the water from the geyser basin, part of which ran back into the basin, to be re-ejected repeatedly by the force, thus causing a great commotion of the water and loud thudding noise as the water and steam battled together. This lasted for about fifteen minutes, when the eruptive force had cleared all the water out of the basin, throwing it in a parabolic spray to a distance of over 2 chains. Then the second phase of the eruption started, consisting of a jet of superheated steam and water of a bluish-purple tint, into which I could not thrust a pointed stick. Emerging from the fissure, and striking against the projecting rock, it was lifted up at an angle of about 45° degrees, throwing a fine spray for a distance of fully three chains. The immense force with which the steam is ejected against the rock and its sudden expansion as it emerges from the fissure cause a terrific roaring noise, which can be heard at a considerable distance. It was with the greatest difficulty we could hear each other speak in the vicinity of the geyser. This second phase continued for over an hour, the pent-up force dying away gradually, the water, falling back into the geyser basin, re-entered and disappeared in the fissure, and the geyser action stopped altogether. We could then see in comfort the apertures hereinbefore described; the edges of the fissure were blackish brown, smooth on the inner side, but there was no sign of volcanic heat, or fire, no glassy formation, though the Natives say that sixteen months ago tongues of flame were seen by them issuing from the orifice. We only saw one eruption, but Watene says that they are all similar, and take place at intervals of about six hours, with two to two and a half hours' duration, thus giving about three eruptions in the twenty-four hours.

Having seen "Pohutu," "Wairoa," the "Crow's Nest," and "Wairakei" geysers, also the blow-hole at Karapiti, in action, I have no hesitation in saying they sink into insignificance when compared with the "Terrific" of Orakeikorako (which is the very appropriate name given to it by Mr. R. S. Thompson, who first saw and described it).

For some months past this geyser has been quiescent. It is anticipated that a wet season, with a rise of the Waikato River, will render it active again.

ACCOMMODATION.

The opening of the Auckland–Rotorua Railway, which took place in December last, found Rotorua totally unprepared for the greatly increased traffic. From December until the end of March the hotels and boarding-houses were filled to overflowing, and visitors had to be lodged in tents. This state of things will be remedied by next season; indeed, the accommodation will probably exceed the demand. A list of the hotels and boarding-houses, with the number they will be able to accommodate respectively, may be interesting.

HOTELS.	
The Grand	70
The Geyser	50
The Palace	40
Lake House	60
The Rotorua	22
BOARDING-HOUSES.	
Bathgate House	60
The Langham	20
Tarawera House	20
Lake View	20
Mokoia View	20
Total	382

The tariffs vary from 25s. weekly. It is difficult to get an accurate estimate of the number of visitors for the past year. The hotel returns are very unreliable, as visitors move from one house to another, and so get counted twice over in many cases; but the fact remains that our bath fees for December, January, February, and March last were nearly double what they have been for the corresponding months of any previous season, showing that our invalids at least have increased in the same ratio. The returns of baths taken show 23,196 for the year ending March, 1895, as against 17,032 for the previous year.

ROUTES FROM AUSTRALIAN COLONIES.

The most direct route for visitors from the Australian Colonies is from Sydney to Auckland, and thence by rail to Rotorua. Those who may desire to see something more of the country may take steamer from Melbourne to the Bluff, and from thence on to Wellington, continuing the journey overland to Rotorua—a four days' trip, most enjoyable in fine weather. Patients should be recommended to bring plain, warm clothing, and substantial boots and shoes. Rotorua is essentially a convenient place for the wearing-out of old clothes. Frills and furbelows, jewellery and valuable watches, had better be left at home, as they are not improved by the sulphurous vapours arising from the springs. The watch *par excellence* for Rotorua is the nickel-plated " Waterbury."

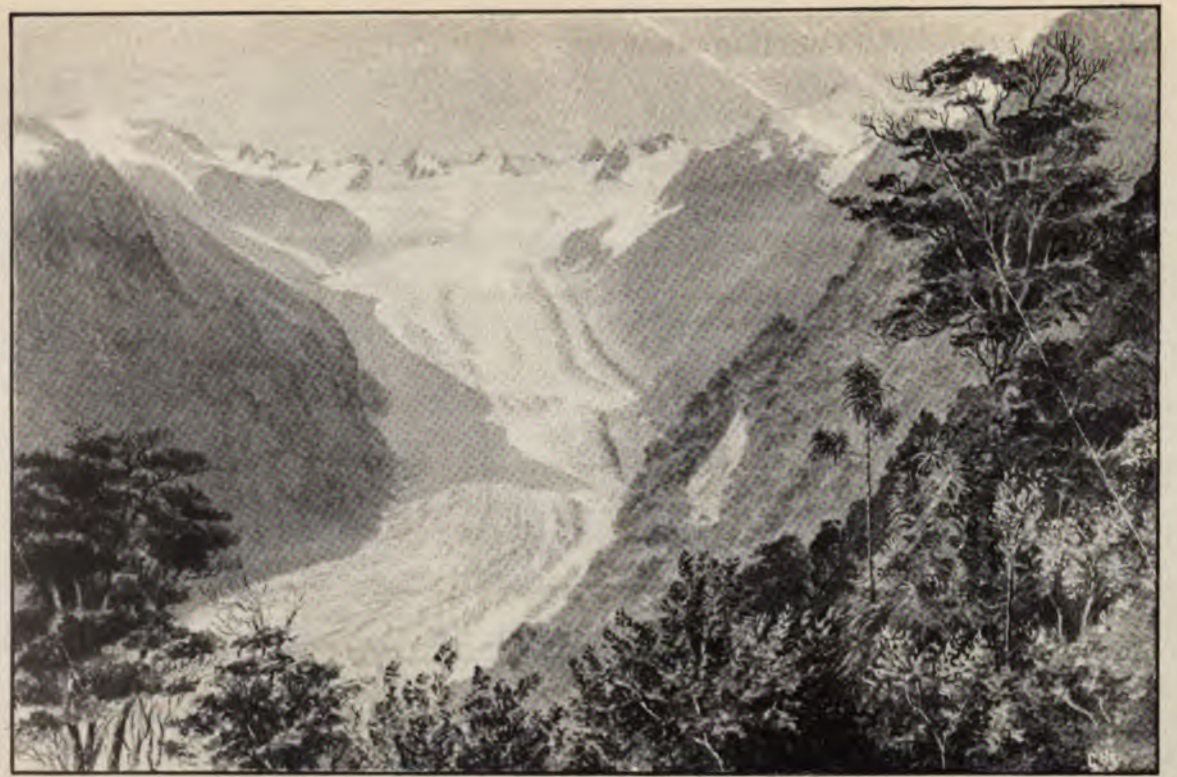
A SCENIC WONDERLAND.

By Malcolm Ross.

The traveller desirous of seeing New Zealand scenery in all its varied grandeur and loveliness will, at no distant date, be able to commence his tour at the West Coast Sounds, work his way overland *viâ* McKinnon's Pass to Lakes Te Anau and Manapouri, proceed thence to Wakatipu and Wanaka, then on to Mount Cook and over one of the glacier passes to the West Coast, returning eastward *viâ* the Otira Gorge to Christchurch. A tour on these lines will, with the formation of good roads and tracks in some of the roughest parts, be easy of accomplishment, and embrace the principal scenic features of interest in the South Island. At present such a journey is impracticable, except in the case of mountaineers, or, at all events, good walkers; but the points mentioned may be all reached in different ways in comparative comfort.

West Coast Sounds.

Beginning in the South, we have the far-famed West Coast Sounds, no fewer than thirteen in number, all lying within a distance of 120 miles on the south-west coast of the Middle Island of New Zealand. The best way of visiting the Sounds is by the annual excursions, so well carried out each summer by the Union Steamship Company of New Zealand. Every season these excursions, which partake of the nature of a gigantic ten-day water-picnic, are patronised by hundreds of sight-seers from all parts of the civilized globe, and it is safe to say that no such splendid excursion can be enjoyed in any other part of the world. The steamer calls first at Preservation Inlet, thereafter proceeding northward through some of the most beautiful fiords to Milford Sound, the grandest of all. The mountains by which Milford Sound is surrounded are the highest on this coast, the glacier-crowned Pembroke Peak rising almost it might be said from the water's edge to a height of 6,700ft. One of the most noticeable among them is the remarkably-shaped Mitre Peak, the end of a long ridge that runs back from the Sound, and attains in the Mitre its greatest height of 5,560ft. The Lion, a massive mountain on the opposite side, from some points of view closely resembling a lion *couchant*, is likewise a striking feature of the Sound; and the Stirling Falls (500ft. high) and the



Franz Josef Glacier from Camp No. 6.

Bowen Falls (540ft.) are sights worth coming a long way to see. The walls of the Fiord go straight down to tremendous depths, and, except at the head, it is difficult to find an anchorage for ships. In one place, near the Stirling Fall, the soundings show a depth of 214 fathoms. The Rev. W. S. Green, a member of the English Alpine Club who visited New Zealand some years ago, thus refers to his entry into Milford Sound:—

> Vertical cliffs rose for thousands of feet on either hand, and we drove in before a blast so strong as almost to make steaming unnecessary. The surface of the sea would now and then be torn off in sheets, driven along in spindrift, and again all would be calm as glass. Waterfalls, resembling the Staubach, came down the cliffs from far above the clouds, and were blown away into spray while in mid-air by the fury of the storm. Wherever vegetation could get a footing on these immense precipices lovely tree-ferns and darker shrubs grew in profusion, all dripping with moisture, and running up the cliffs in long strips of verdure till lost to our view aloft in the torn white mists. The vivid green of the foliage was the feature of all this wondrous scene which struck me most. Two or three miles up the sound we steamed close to an immense waterfall which, in one plunge of 300ft., leaped into the sound with a roar like thunder, drowning our voices and sending great gushes of spray over the steamer's deck. The face of another great cliff was so draped with numberless small falls that it seemed to be covered with a veil of silver gauze about 300 yards in width. While passing along here we fired a gun: echo after echo resounded from cliff to cliff, and from invisible crags high over our heads the echo again returned as a voice from the clouds. The mist now showed an inclination to clear off, the rain ceased, and as we entered the inner basin of the sound the forest increased in beauty. The totara pines, draped with festoons of grey lichen, contrasted well with the soft green of the great fern-fronds, and formed a suitable background to the scarlet blossoms of the rata (*Metrosideros lucida*) which here and there lit up the upper surface of the forest with patches of intense colour. Gleams of sunshine began to dart through the clouds, giving a momentary flash on one of the numerous cascades, and then, passing over forest and cliff, added new beauties of light and shade. When about eight miles from the open sea a booming sound rose higher over the voices of the numerous cascades, growing louder as we advanced, and, rounding a forest-clad point, we came upon the grandest of New Zealand waterfalls—the great Bowen Fall. Its first fall is only about 50ft. into a rocky basin, but, leaping from it upwards and outwards in a most wonderful curve, it plunges down with a deafening roar in a single leap of 300ft. The "Te Anau" was allowed to drift up in the eddy caused by the fall, and, being caught by the stream in the midst of drenching clouds of spray, she was spun round as though she were a mere floating twig; then, steaming to a short distance, she stopped again. The weather had now taken up sufficiently for us to see through an opening in the clouds the snow-clad top of Mitre Peak, which rises in one grand precipice of 5,560ft. from the surface of the sound. The glacier on Pembroke Peak showed for a few minutes, and then was lost to view; but what we saw formed the grandest combination of scenery upon which my eyes had ever rested. As these sounds are from 200 to 300 fathoms deep, there are but few places in them where a ship could anchor; had we stayed there for the night we should have made the steamer fast to the trees.

THE SUTHERLAND WATERFALL.

But the attractions of this locality are not exhausted by a visit to the Sound itself. There are other wonders near at hand, and now easily accessible to the tourist. A favourite excursion is the one to the Sutherland Falls, distant from the Sound some thirteen or fourteen miles. Two short stages of the journey are made in boats, but the visitor has to walk the greater part of the distance.

Formerly this was rather a serious undertaking for all but accomplished pedestrians, as the original bush track was a very rough one; but by the time these lines are in print a well-graded footpath will have been formed all the way to the Falls, and any one capable of walking eight or ten miles on an ordinary road may safely undertake the journey. The accommodation at the end of the day's tramp is, however, of rather a primitive character, and visitors must be content to "rough it," at all events for one night. The Fall itself—1,905ft. high—is more remarkable for grandeur than for beauty, but, in any case, it is well worth a visit, apart altogether from the splendid views of mountain, river, lake, and forest to be seen on every hand during the entire journey.

THE CLEDDAU AND MOUNT TUTOKO.

No visitor to Milford should return without taking a stroll for a few miles up the north-west branch of the Cleddau River. The writer has just returned from an expedition into the hitherto unknown country at the head of the north-west branch of this river, having made, with Mr. W. J. Hodgkins and Mr. Kenneth Ross, the first ascent of Mount Tutoko—the highest mountain in the fiord country—and discovered several new glaciers, peaks, and waterfalls. When a track is made and a hut erected at the foot of the Age Glacier, this trip will be an easy one, and very popular with tourists to the Sounds, as an easy day's walk from Milford will take the traveller on to the clear ice of the glacier, which comes down almost to the bush in the valley, only about 1,200ft. above sea-level. The scenery at the head of the valley, which is hemmed in by precipitous glacier-crowned mountains, is very fine, rivalling anything that can be seen in the Arthur Valley or in the neighbourhood of the Sutherland Falls. Indeed, the great majority of tourists will, as soon as facilities are provided, prefer to make this trip rather than the one to the Sutherland Falls. The terminal face of the glacier is only about ten miles from the Sound. We reached it easily in a short winter's day, though we had to carry heavy swags through the trackless forest, and over the great slippery boulders of the river, which for several miles is a roaring torrent, its banks lined with beautiful bush in which the kiwi and kakapo and other strange birds find a congenial home. We pitched our tent on the ancient tree-grown moraine of the Age Glacier, and next morning started early on our climb. A certain but somewhat difficult and dangerous route to the summit presented itself up the main ice-stream, but this was abandoned in favour of the safer but more problematical one to the right of the glacier. After ascending some 3,000ft. above the camp we were surprised to see, right above us, a magnificent ice-fall which came from a plateau beyond. Getting above this, an easy way over gentle snow slopes, cleft by great *bergschrunds*, led to the final peak, which we now expected to reach in an hour. Our expectations, however, were not realised, for the upper slopes were very hard, and a great deal of step-cutting was required, while the rocks on the final peak were glazed with ice. The rope and the ice-axes were here in continual use for four hours, and the greatest caution had to be observed. It was not till sunset that the crest of the final peak was reached. The view, as the sun sank in a bank of cloud to the westward, and as, almost simultaneously, the moon rose behind Tutoko, was one never to be forgotten. The aneroid showed the mountain to be over 9,000ft. high. The descent was of rather a thrilling nature, as, owing to the shortness of the daylight, we had to spend the night out on the mountain, some 2,000ft. above our camp. The climb is an easy one till the final ice-slope and the last rocks are reached. It is possible, however, that in the summer, when the upper rocks are not glazed with ice, the final part of the ascent may also be comparatively easy, so that the climb may become a popular one with tourists. In any case, the ice-fall may be safely reached by any one who is a fairly good walker.

Overland to Te Anau.

This is a trip which may now be safely undertaken by any one who can walk ten or fifteen miles on an ordinary hilly road, as there are huts at convenient halting-places all along the route. The pass between the Arthur and Clinton Valleys is some 3,400ft. above sea-level; but there is a fairly good path cut through the bush on either side, and ladies have gone from the Beech Huts on the Milford side to the Mintaro Hut on the other side in three hours. The best plan is to make the journey in easy stages, camping the first night out at the Beech Huts, near the Sutherland Falls, the second night in the hut at Lake Mintaro, at the foot of the pass on the other side, the third night in the half-way hut in the Clinton Valley, and the fourth night in the hut at the head of Lake Te Anau. The views all along the route are superb, and the scenery as viewed from the pass, with Mounts Balloon and Hart on either hand and Mount Elliott and the pretty little Jervois Glacier opposite, on the Milford side, is grand in the extreme. Those unused to bush work should secure the services of a guide, and arrange for Mr. Snodgrass' steamer to meet them on arrival at the head of the lake.

The Lakes District.

Next in importance to the West Coast Sounds, but more easily accessible to the tourist, are the lakes of Otago, each having a character of its own. To get to Lakes Te Anau and Manapouri the tourist goes by rail from Invercargill or Dunedin to Lumsden, the next day proceeding by coach to the southern end of Te Anau. Here the scenery is somewhat uninteresting and greatly inferior to what opens out when, the following day, the traveller takes the steam launch to the head of the lake. Te Anau, thirty-eight miles long and one to six miles wide, covers a total area of 132 square miles. It has three western arms or fiords, and numberless islands are scattered over its surface. On either side rise wooded mountains, and in rainy weather countless waterfalls descend into the lake. As one penetrates farther the beauties increase, and at the head of the lake the towering summits, often snow-capped, are most awe-inspiring. Traces of Maori occupation are plentiful at both Lakes Manapouri and Te Anau, and the remains of a kaik are still shown about a mile from the south end of the latter lake. The country around these lakes was once inhabited by a tribe which was exterminated by the northern Maoris. At the head of Lake Te Anau is a hut for tourists, and from thence a track runs up the Clinton Valley, over McKinnon's Saddle, and on to Milford Sound.

Lake Manapouri is reached after thirteen miles' driving along the course of the Waiau, one point of the road—the Horse-shoe Bend—being very beautiful. The area of the lake is fifty square miles. The mountains around it, from 6,000ft. to 7,000ft. high, and the islands in it, are richly mantled with luxuriant growth. Above the bush-line, as in Lake Te Auau, rise the granite tops of the peaks, shattered and splintered, and often snow-clad. The two largest islands are named respectively Rona and Pomona. The scenery at the head of the lake, up the Spey River, and the Mica Burn, is wonderfully fine, though as yet it is not accessible to the ordinary tourist.

Returning to Lumsden, the traveller can proceed on to Wakatipu, taking train for Kingston, which is reached in the afternoon, and steamer up the lake to Queenstown. As he nears Queenstown, which is charmingly situated, the mountains become more impressive, and the curious Remarkables, with their double cone, rise towards his right. On the left is Ben Lomond—a favourite excursion. From its summit a magnificent view of mountains and lakes can be obtained. Another trip is to Arrowtown, which lies in an important mining district. Coming back by the Shotover Gorge, the traveller passes through wild and impressive scenery, and many features of interest are here to be noted that recall the early gold-mining days. The road to the Phœnix Mine, at Skipper's, is, in many parts, hewn out of the solid rock—a precipice above and below. This excursion can be made in a day on horseback from Eichardt's Hotel. The Kawarau Falls, the only outlet of Lake Wakatipu, should also be visited.

Of course, the principal excursion from Queenstown is to the head of the lake. The tourist will find comfortable quarters and a good guide at Birley's, and many interesting journeys may be undertaken. Some of the finest scenery is up the Routeburn Valley to the Lake Harris Saddle, from which a wonderfully grand and comprehensive view is obtainable. Kinloch, Precipice Creek, Diamond Lake, &c., can also be visited from Glenorchy, but *the* expedition to accomplish is the ascent of Mount Earnslaw, which is practicable, in fine weather, by any one who is a good walker, and can climb a little. The view from the summit is probably the finest obtainable in Otago. The bottom of Lake Wakatipu is, according to "Murray's Guide," in some places 1,100ft. below sea-level, although the surface of the lake is 1,000ft. above the sea. Large and excellent trout are found in its waters, which are intensely clear, and very pure. Its area is 112 square miles, its length fifty miles, and its breadth varies from one mile to three and a half miles.

Wanaka is said to excel Wakatipu in beauty, but is smaller, being thirty miles long by three miles wide, with an area of 57,000 acres. By means of a steamer that plies on the lake, various excursions may be made—up to the head, to Manuka or Pigeon Island, curious for containing a small lake in its centre, and to East and West Wanaka, from which a fine view of Mount Aspiring can be gained. From Pembroke the tourist may drive to Lake Hawea. Here, on the surrounding ranges, numbers of red deer, introduced from Scotland by the Acclimatisation Society, are doing well. The shooting season is April and May. The foot of Mount Aspiring can be reached in a day's ride, the route lying up the Matukituki Valley.

The Southern Alps.

The Southern Alps of New Zealand, extending in one almost unbroken chain along the western side of the Middle Island, though not so high as the Swiss and Italian Alps, according to competent authorities, rival them in the wonderful variety and grandeur of their surroundings. In the south the ranges, which run in different directions, are intersected by the West Coast Sounds on the one side and the fiords of the great lakes on the other. The mountains here come in many cases sheer down to the water's edge, with a most luxuriant forest growth in the valleys and on their lower slopes, and tops crowned with perpetual snow and ice; the grandeur of the scenery can scarcely be imagined. Among these ranges there are innumerable peaks, glaciers, and waterfalls, and, to the climber, the mountains in the neighbourhood of Milford Sound offer some splendid rock-work. The Mitre is a bold rock mountain of 5,560ft., rising precipitously from the water's edge, and it seems a moot point whether its final peak is possible of ascent. On the other side of the sound, Mount Pembroke, capped with a fine glacier, also offers a good climb, while Tutoko, as I have already stated, bears the palm from an alpine climber's point of view. Next in order comes Mount Fosbery, a remarkable rock mountain, clothed in places with glacier and ice-fall, and, from the Milford side at all events, very difficult of ascent. Mount Balloon, too, is a peak almost startling in its majesty, with its 5,000ft. or 6,000ft. of precipices rising sheer from the Arthur Valley. But there are mountains by the score, nay, by the hundred, in this region.

Going farther north, we have another series of fine mountains at the head of Lake Wakatipu—Cosmos Peaks, Mount Earnslaw, Mount Tyndall, Mount Edward, Mount Anstead, and other glacier peaks, all over 8,000ft. high; and when it is remembered that, owing to the lower height of the snow-line and the lesser elevation at which the mountains begin to rise, a peak of 8,000ft. in New Zealand is equal to one of from 11,000ft. to 12,000ft. in the European Alps, it will be seen that there is, even amongst our second- and third-rate peaks, a splendid field for alpine work. Mount Earnslaw, 9,165ft. high—a massive mountain, with glaciers on all sides—is the predominating feature of Lake Wakatipu, and its ascent, first accomplished by the guide Harry Birley, is becoming a favourite one for tourists. Since Birley, and, subsequently, the writer and his brother, made the ascent, an easier route, quite practicable for the gentler sex, has been discovered, and many ascents have been made. The western or higher peak, however, is still unclimbed. Proceeding still farther north, we find the mountains increasing in height. Mount Aspiring, at Lake Wanaka, culminates in a fine peak, all but 10,000ft. high, which rises majestically from a great glacier basin. Then come Castor and Pollux, and beyond them a long chain of alps, stretching away to where Mount Cook or Aorangi towers majestic his snowy triple peaks 12,349ft. in air. At Mount Cook we are in the midst of the grandest scenes of the Southern Alps. Formerly it was somewhat of an undertaking to visit this locality ; now, two days' coaching from the railway at Fairlie lands the traveller at the Hermitage, a comfortable hostelry at the very foot of Mount Cook. We look out from the drawing-room window on to the ice-seamed sides of Mount Sefton—a glorious peak draped in white glaciers—and we can see and hear the avalanches thundering down. Past Mount Sefton, and not five minutes' walk from the Hermitage, flows the Mueller Glacier, flanked on either side for eight miles by towering glacier-clad ranges, the scenery at its head being remarkably fine. Up another valley, under the great buttresses of Mount Cook, runs the Hooker Glacier, some twelve miles long, curving round to Mount Stokes (10,090ft.), and receiving a number of fine tributary streams of ice from the western slopes of Aorangi—notably the Empress, Noeline, and Mona Glaciers. The ice from the Empress Glacier and the upper portion of the Hooker is very much broken up by pressure while rounding the rocky buttresses just above the Noeline Glacier, and forms a beautiful ice-wall, but one that is, late in the season, very difficult to traverse.

One of the finest views in the district is obtainable from the Sealy Range, at an altitude of about 8,000ft. I made this excursion in 1890 with Mr. T. C. Fyfe, of Mount Cook fame, and we were charmed with the view. Immediately below us the Metelille Glacier curved gently down for some distance, and then poured its ice in one great mass into the Mueller, which, broken and crevassed, flowed northward in a gentle curve 5,000ft. below us. From the source of the Mueller the eye swept round the peaks and glaciers of the Moorhouse Range to Mount Sefton, rearing his ice-seamed sides 10,000ft. in air. Then the fine peak of Mount Stokes, far away at the head of the Hooker Glacier, and the glistening snows of St. David's Dome, came into view, while down from their bases flowed the Hooker Glacier itself, swollen with the tributary ice-streams from the long southern arête of Mount Cook. Over the great rocky ridge of Mount

Rough Ice.
Ranunculus Lyallii
Onward!

In the Rough Ice.

Cook, on the Tasman side, appeared the bold form of Mount Haidinger, with his fine glaciers robed in shadow, save for a little patch of gleaming white on the western slope. Then came Mount De la Bêche, with the white cones of the Minaret Peaks high above all the glaciers. Still further afield was the beautiful Elie de Beaumont, flanking the north-western side of the Tasman Valley, and just beyond it the Lendenfeld Saddle and the white mass of the Hochstetter Dom terminating the valley. From the latter came the great *mer de glace* of the Tasman, plainly visible for eighteen miles, down past Elie de Beaumont, curving round between De la Bêche and Malte Brun with a majestic sweep, then flowing in a straighter line past Mounts Haidinger and Haast, receiving tribute from glacier after glacier till it stopped far down the valley, melting slowly, and issuing forth in another form—the Tasman River. Flanking it to the eastward was the Malte Brun Range, steep and rocky; and beyond that in the hollow between that and the Liebig Range lay in dim shadow the Murchison Glacier. What a glorious panorama of mountain scenery it was! Dozens of peaks, from 8,000ft. to 12,000ft. high, and between forty and fifty glaciers, were in sight at one time; while right in the midst of it all rose the dark buttresses of Aorangi, pile on pile, the final snow peak, 12,349ft. high, gleaming in the setting sun.

Many fine glaciers and peaks in the Southern Alps are as yet even unnamed, and, as Mr. Green has put it, there is, in the neighbourhood of Mount Cook alone, work for a whole generation of climbers. Future mountaineers will not have to contend against many of the difficulties which the pioneers have encountered, for the Government is now awakening to the fact that the scenery is one of the best assets which the colony possesses, and is spending thousands of pounds in forming roads and tracks, so that the chief points of interest will be easily accessible to tourists, who are coming in increasing numbers every year from all parts of the world. With the facilities that at present exist for travel, it is a wonder that more of the English alpine climbers do not come out to New Zealand. There is certainly here a splendid field of virgin peaks which the best among them need not deem unworthy of his prowess.

The fauna and flora, too, of the New Zealand Alps are extremely interesting. The kea, a mountain parrot with a surprisingly powerful beak, of which, curiously, the upper mandible is jointed, has his home in these fastnesses. He is much dreaded by the runholder because of his liking for the kidney fat of the sheep, to obtain which he settles on the back of the unfortunate animal and tears away wool and flesh till the desired dainty is reached. The weka—one of the New Zealand wingless birds—is quaintly interesting, if only for the intense curiosity it evinces in the doings of the "featherless biped." In more southern latitudes are found other strange birds, such as the kakapo and the kiwi. There are many other birds likewise to be met with, interesting alike to the naturalist and the sportsman.

At Mount Cook the flora is particularly beautiful and interesting. In the sub-alpine glens numerous berry-bearing plants abound, while in favourable spots the alpine vegetation is varied and luxuriant. There are several kinds of ranunculus, and a bewildering variety of celmesias, gentians, and senecios also flourish. Among the rocks, at higher altitudes, the edelweiss, differing but slightly m the Swiss variety, grows in profusion.

EQUIPMENT.

The visitor to New Zealand who is desirous of going beyond the verge of civilisation is often puzzled as to what he should take with him in the way of equipment, so a few hints may not be out of place here.

For the Sounds trip in the "Tarawera" fairly strong and easily-fitting boots are a *sine quâ non* if the tourist intends to visit the Sutherland Falls, the Cleddau Valley, &c. Long thin gloves and an ample veil are also necessary in the summer time to ward off the attacks of the myriads of sandflies, which under some circumstances make life in the Sounds almost unbearable.

Referring generally to the question of outfit for travelling amongst the mountains, let us consider first the question of clothes. These should be made entirely of wool. A tweed knickerbocker suit with Norfolk jacket, flannel shirt, and fairly thick stockings will be found most serviceable. The lining of the pockets should be also of wool. A Norfolk jacket without the pleats is preferable to the ordinary kind. It should be well supplied with pockets made with flaps to button, one or two being lined inside with mackintosh. Boots should be fairly strong in the uppers, and have stout projecting soles nailed with clinkers at the edges and hobs in the middle. It is difficult to get the proper nails for alpine work in New Zealand, though nails that answer the purpose fairly well are obtainable in Christchurch and Timaru. Enough nails for one pair of boots and some to spare can be got from Switzerland by sending a post-office order for 6s. to Ulrich Almer, Guide, of Grindelwald. An ice-axe, alpine rope, sleeping-bag, smoke-tinted goggles, knitted anklets or gaiters to keep the snow out of the boots, and woollen gloves are also necessary if any real alpine work is contemplated. A Whymper tent—*i.e.*, one with a waterproof floor sewn into it will be necessary for the more arduous expeditions. On the overland track to Milford Sound a tent need not be taken, as there are huts along the track; but blankets and provisions will have to be carried. A pair of rubber-soled gymnastic shoes are a great comfort in camp after a day's march. In Dr. Claude Wilson's excellent little book on mountaineering will be found a packing-list which will serve to remind travellers of what it is necessary to provide themselves with. Much valuable information will also be found in the Badminton Library volume on "Mountaineering," by Dr. Clinton Dent and others. It will be well for the tourist, however, to remember that in New Zealand there is often difficulty in securing porters, and in thinking of his own back he will, no doubt, see his way to do without many of the items enumerated by these writers.

The following are some of the principal books and pamphlets dealing with the sounds, lakes, and alps of New Zealand. Many of the works mentioned are out of print, but nearly all can be seen in the public libraries of the colony :—

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Haast, Sir Julius von.—"On the Physical Geography of New Zealand, principally in reference to the Southern Alps"; *Proceedings of the Royal Society of Melbourne*, 1861.

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MANNERING, G. E.—"With Axe and Rope in the New Zealand Alps"; Longmans, Green, and Co., 1891. Illustrated.

MCHUTCHESON, W.—"Camp-life in Fiordland: a Tale of the Sutherland Falls"; Government Printer, Wellington, 1892. With map and illustrations.

ROSS, Malcolm.—"Guide to the Lakes of Central Otago"; Government Printer, Wellington, 1889. Map and illustrations.

ROSS, Malcolm.—"Aorangi; or, The Heart of the Southern Alps, New Zealand"; Government Printer, Wellington, 1892. With maps and illustrations.

ROSS, Malcolm.—"The West Coast Sounds of New Zealand: An Account of a Trip in the Union Company's s.s. 'Tarawera'"; J. Wilkie and Co., Dunedin, 1893. Numerous illustrations.

"Maoriland: An Illustrated Handbook of New Zealand"; published by the Union Steamship Company of New Zealand, 1884. Articles by Rev. R. Waddell, M.A.; A. Wilson, M.A.; and T. W. Whitson. Maps and illustrations.

"Report of the Survey Department of New Zealand"; Government Printer, Wellington. Recent numbers contain interesting articles by T. Mackenzie, M.H.R., T. N. Brodrick, E. P. Harper, and others, regarding mountain exploration.

"New Zealand Alpine Journal"—Nos. 1 to 7; Whitcombe and Tombs, Christchurch. Various articles by members of the New Zealand Alpine Club.

THE COOK ISLANDS.

By FREDERICK J. MOSS, British Resident.

THESE islands, seven in number, lie between 18° 15′ and 21° 47′ S. latitude and 157° and 160° W. longitude. The most southerly is Mangaia, next comes Rarotonga; while to the northward lie Aitutaki, Atiu, Mitiaro, Mauke, and the small Hervey Islands. The group is now federated, has a regular Government, and a regular revenue derived from import duty. The population is between 8,000 and 9,000. The imports for 1894 amounted to £22,433 and the exports to £20,665. Of the imports, £13,151 were from, and of the exports, £15,906 were to, New Zealand. The chief exports are coffee, of which a very fine quality is grown, copra (the dried cocoanut), oranges and tropical fruits, and cotton. Coffee and oranges grow luxuriantly and without care—literally wild. Cotton, owing to low prices, has gone largely out of cultivation, though seventeen hundred pounds' worth was shipped last year.

Rarotonga is the most important, the most fertile, and certainly the most beautiful among all the beautiful islands of the group. In circuit it is not above twenty-five miles, with mountains rising to a height of 3,000ft., clothed in forest and bush of every tropical kind. A few small openings break the coral reef surrounding the island, an advantage which has made Rarotonga the chief resort of shipping, and the centre of trade for the group.

Owing to their thorough natural drainage the islands have a wonderfully good and dry climate—cool and agreeable for the tropics, within which they lie. Hurricanes are rare. The wet season lasts only from December to the end of March, and has little of the close humid weather that prevails in many islands. There are no epidemics of fever, dysentery, or other sickness; and there are no snakes.

The natives are of the wide-spread Maori race, kindly, brave, manly, generous. They have all the qualities, good and bad, of that most amiable of dark-skinned races; the only one, perhaps, which the white man has been able to mix with freely, to fight with fiercely, and in the end to like and respect.

Some of the islands were introduced to the world by Captain Cook, but in name only. Rarotonga, where he might have landed in armed boats, and obtained much-needed supplies, he passed without discovering. Those at which he touched faced him with unbroken coral reefs and surfs, through which no boat could pass; while the natives were drawn up along the shore in menacing array. So Cook passed by, with only a brief notice in the account of his wonderful voyage. The islands visited by him were Atiu and Mangaia, and the little islets which he called the Hervey Islands, after one of the Lords of the Admiralty of his day. The name "Hervey" has, in consequence, been often applied to the whole group, but wrongly. The "Cook Islands" is the only name by which the group has been always officially known.

Till 1821 the natives were cannibals, and in constant warfare with one another. Generally three distinct tribes lived in each island, and each tribe was at war with its neighbours. In 1821 the Rev. John Williams—afterwards killed at Eromanga, in the New Hebrides—came from Raiatea, in the Society Islands, to Aitutaki, and established a mission there. Starting from Aitutaki the missionaries preached in Rarotonga and the other islands of the group. In 1825 all had embraced Christianity, cannibalism was abandoned, idols burned, temples destroyed, and peace made throughout the islands. Men, women, and children flocked to the schools to learn reading and writing. Soon they adopted and made for themselves, from European stuffs, a very tasteful style of European clothing. They built churches, were rigid in the observance of religious exercises, abandoned their old drink "kava," and banished all intoxicating liquor. Yet, while they flourished and increased in war and heathenism, under these new conditions of living they have terribly fallen off in numbers and vitality. Many reasons for this have been given, but all would apply equally to the Negro race, which, on the contrary, continues to increase. Surgeon Andrews, R.N., now of the Haslar Royal Naval Hospital, visited Rarotonga in H.M.S. "Ringdove" in 1893, and wrote a full and admirable report on the health of the Natives (New Zealand Parliamentary Paper, A.-3, 1894). He lays much stress on the introduction of tubercular disease, which has not yet passed out of its virulent stage. No doubt this is the proximate cause; but so general throughout the Pacific is the decadence of the Maori that one is tempted to seek its origin in some novel yet widely-prevalent custom. In this regard I have sometimes cast a suspicious eye on the now ubiquitous pig, which Maoris neither feed properly, nor kill properly, nor cook thoroughly before eating. An animal so carefully looked after in civilised countries as a dangerous character should be strictly examined by competent authority concerning his effect upon the Maoris of the Pacific, by whom he is held so dear.

The Maoris of the Cook Islands have now been within the influence of Christianity for some seventy years. By degrees, moreover, they have been brought into closer and more constant intercourse with their English neighbours in New Zealand. Many have gone to sea in whaleships, for the sea is their great delight. Altogether, they have made great progress during the last half century.

Fearful that the islands might be taken possession of by the French or Germans, the Maoris long sought the protection of Great Britain. In 1885 Makea Takau, the Ariki Vaine (or Queen), of Avarua, one of the three districts of Rarotonga, visited Auckland, and saw there the late Mr. Ballance, then Minister of Native Affairs. Mr. Ballance was so convinced of the wisdom of granting her request that he sent a minute on the subject to the Premier (Sir Robert Stout). Representations were made to the Imperial Government. On the 27th of October, 1888, the British flag was hoisted by Captain Bourke, of H.M.S. "Hyacinth," and the islands placed under a protectorate. The Natives were assured that neither their laws and customs then in force, nor the government of their Arikis, would in any way be interfered with. They were enjoined to rule with justice, and all persons of whatever nationality residing in the country were required to conform to the laws.

These differed in each island, but were, in every instance, modelled on a Church government, the only form possible when Christianity replaced the ancient heathenism. At first, church membership was made a necessary qualification for the holding of any public office, and the legal rule resulted in a settled custom. The laws were humane in principle, but the natives grew out of the conditions under which they were enacted. The missionary rule had not only raised the people morally and intellectually, but had also prepared them for a further advance, and the opportunity came in the appointment of a British Resident (December, 1890). His office was to advise the natives, and to see that no injustice was done to any one on the islands: no new laws might be made without his consent. In the following April the Resident entered formally upon his duties, and at his instance delegates were sent from the various islands to Rarotonga to frame a constitution for the federation and government of the group.

The delegates met on the 4th June, and remained in session till the 10th. A simple constitution was adopted, leaving each island free to regulate its own affairs, but creating a Federal Parliament to raise a Customs revenue, and see to mail-services and other purely federal matters. The appointment of a chief was one of the greatest difficulties in the way of federation, but was overcome after much disputing by the election of Makea Takau to hold the office for her life. Under the constitution adopted, Rarotonga, Mangaia, and Aitutaki send each three members to the Federal Parliament; and Atiu, Mitiaro, and Mauke, which have always been under one local administration, three more—making twelve in all. The members meet at Rarotonga, in a Parliament House built for them about two years ago. As before mentioned, all laws passed by them must be approved by the Resident. A Federal Court sits at Rarotonga to deal with cases between foreigners should they desire to remove their cases from the Arikis' Courts, which have always existed by custom in the islands. The Federal Court has sole jurisdiction in cases of murder, and in breaches of the Federal law, such as smuggling and similar offences. Each island makes its own liquor laws, which, in all but Rarotonga, are prohibitive. In Rarotonga all liquor is placed in charge of a public officer, who grants permits for its purchase. The buyer deals with any one who may have liquor in bond, and takes an order from him for delivery. No sales for consumption on the premises are allowed, and no one may sell again what he has bought. If any one buys more than he is likely to require for his own consumption, the Permit Officer has a right to assure himself that none has been resold before granting more permits. The law is suited to the place, and works well; so that drunkenness is rare. Under the old prohibition law great drunkenness prevailed, as facilities for evasion were so numerous as to render the law perfectly unworkable. In the other islands the absence of harbours, and the fewness of European residents, serve to restrain breaches of the prohibition law, except now and again when traders visit them. If any liquor is then obtained it is drunk on board the vessel, and the quantity cannot be large. Detection in such cases is very difficult, and may, indeed, be considered impossible without a staff of police very much larger than either the country could afford or the occasion would warrant.

The old and bitter jealousies between the various islands, and between the several tribes on each island, hindered at first the smooth working of the Federal Government. There was a vigorous attempt to make the Legislature peripatetic. The building of the Parliament House settled this question, and the annual meeting of the members in Rarotonga has brought about a great change. Finding that their local affairs are not meddled with, and that they receive a subsidy from the Federal revenue — a small but fixed sum — the islands have in great measure laid aside their mutual jealousies, and the business of government is now carried on without difficulty. The peoples of the different islands are learning also to work together for a common object. A school for teaching English has been founded at Rarotonga by the London Missionary Society. The Federal Government granted a subsidy towards the boarding of children from the other islands, and fifty children are now at the school. It is hoped that many of these will become teachers in their turn, and spread a knowledge of English, not only through the Cook Islands, but also among the many islands of the Eastern Pacific and in New Guinea, to which Barotonga supplies many native missionaries. Public schools for teaching English are being discussed in the various districts, and a strong desire for them is manifested. The question is one of means only, and sooner or later the means must be found, for a knowledge of English is indispensable if the government is to be carried on by Maoris.

A weekly newspaper is published in Barotongan and English. This newspaper, the "Torea," is much valued by the Maoris. In the absence of a printing press it has up to now been cyclostyled; but the proprietor announces that, from the encouragement given, the paper will shortly be issued in type. The Maoris take a particular delight in writing to this paper, and the great trouble seems to be to find room for their effusions.

At present the only taxation is a Federal import duty of 5 per cent. The sale of stamps by the Post Office has proved an appreciable though fluctuating and temporary source of revenue. In the last session of the local Council of Rarotonga a tax for roads was levied on individuals, in proportion to the frontage of the land they occupied. The payment of this tax—the first ever levied locally—was resisted by some districts, but all have since given in, and paid in accordance with the law. The levying of this tax by a Native Council, and the universal payment thereof by the Maoris, afford, perhaps, the most striking proof of the change that united action and self-government have produced. There is good ground for hope that the Maori will in a few years be quite able—if he has access to English books and ideas—to govern himself.

Rarotonga has a beautiful carriage road round the island. Of the road about twenty miles are very good. The remaining three or four miles are capable of improvement, though passable in nearly all weathers. They will probably be taken in hand next year. Last year a dangerous and difficult pass known as the Black Rock, which has always been a terror to drivers, was widened, and a very good road formed through it.

The Maoris are good ship- and boat-builders. One of their vessels, built entirely by themselves, a schooner called the "Takitumu," of about 100 tons, has paid two or three visits to Auckland. All their vessels are worked by Maori sailors, but when they make distant voyages a European master is engaged.

The houses are roomy and well-built, and the people have numerous buggies and other vehicles. Last year, when the Governor of New Zealand with his family visited them, they were able to give him an excellent reception, and did their best in all ways to show that they fully appreciated the honour of a visit from Her Majesty's Representative in New Zealand. The opportunity was taken to hoist the Federal flag which the Admiralty had sanctioned. The ceremony was performed by His Excellency, and the flag of the Cook Islands Federation was for the first time hoisted over the Parliament House, amid the cheers of the crowd, which had assembled from all parts of the island for the occasion.

Among the Maoris the rule of the chiefs has always been absolute. Each tribe has its *ariki* (king or queen, as the case may be), who is really the leading *mataiapo* (or noble). The *ariki* is only the first among equals, the *mataiapos* being the real rulers.* Those holding land directly of a *mataiapo* are called "*rangatira.*" There are no money-rents, but an *ariki* receives certain definite services from the *mataiapos*, and, through the *mataiapos*, from the *rangatiras*. These services are all honourable; but below the *rangatiras* are the *ungas*, whose work is of a menial nature, such as pig-feeding, cooking, &c. The gradations of rank are very marked and strictly upheld. So highly are the *mataiapos* considered, that if, from any cause, one be displaced, a successor to the rank and land must be immediately named from the same family. The titles have thus been preserved from the time of the original settlement, made, according to their traditions, several centuries ago, by natives from Raiatea and the Society Islands, on the one hand, and by rival chiefs from Samoa on the other.

There is no armed body of any kind in the islands, and crime is almost unknown. A very small body of police—or rather watchmen, for they are quite untrained—suffices to keep order, despite the perpetual petty quarrels in which the remnants of old jealousies still involve the Maoris. With new aims, new objects, and more general association for public purposes, these petty quarrels have diminished, and it is hoped will not now be allowed to hinder, as they long did, the union and progress of the islands.

The following are the statistics of revenue, and of imports and exports, for the years 1892, 1893, and 1894. Previously to 1892, there being no revenue nor regular Government, the statistics were only roughly gathered by H.B.M. Consul, as he could best obtain them, by inquiry from importers and others. There was no post-office. All letters were sent to New Zealand by the Consul, and New Zealand stamps were put upon them:—

	£	s.	d.
Federal revenue for the year ending 30th June, 1892	818	10	0
Year ending 30th June, 1893	925	9	0
„ 30th June, 1894	1,246	7	0
„ 30th June, 1895	1,287	1	4
Total	4,277	7	4

This includes £769 17s. 1d., the revenue from postage-stamps used for mail services and sold to collectors.

Imports—	£
Year ending 31st December, 1892 (exclusive of specie) ..	16,249
„ „ 1893 „ ..	19,284
„ „ 1894 „ ..	22,433
Total	57,966

An average of £19,322 per annum.

EXPORTS—	£
Year ending 31st December, 1892	20,336
" " 1893	19,668
" " 1894	20,665
Total	60,669

An average of £20,223 per annum.

Of the imports, there came from New Zealand—	£
In 1892	10,995
" 1893	10,187
" 1894	13,151
Total	34,333

The remainder were from California and Europe *viâ* Tahiti.

Of the exports, there went to New Zealand—	£
In 1892	17,680
" 1893	14,307
" 1894	15,906
Total	47,893

The remainder of the exports went to Tahiti.

Small sailing-vessels, owned and worked by Maoris, keep up communication between the islands. The entries of such vessels at the Customhouse in Rarotonga during 1894 were: Inwards 30, of 1,376 tons; and outwards 28, of 1,223 tons. The mail-service with New Zealand is monthly, and is maintained by the steamer "Richmond," which calls at Rarotonga on her way to and fro between Auckland and Tahiti.

A census of the inhabitants of Rarotonga was taken on the 30th June last. This was the first regular census attempted in any one of the Cook Islands. The population of Rarotonga was found to be one-fourth in excess of the received estimate. If the estimates for the other islands are similarly too low, the population of the federal group must be about 9,000. The following particulars were ascertained:—

TOTAL POPULATION.

Avarua District	1,102
Arorangi District	540
Ngatangiia and Muri Districts	408
Matavera District	208
Titikaveka District	196
	2,454

Of the above, 381 could read only, and 1,054 could read and write; total, 1,435.

The ages were:—	Males.	Females.	Persons.
Under 5 years	119	106	225
5 to 10 "	179	133	312
10 to 20 "	247	201	448
20 to 50 "	594	505	1,099
Over 50 "	126	85	211
Doubtful	85	74	159
	1,350	1,104	2,454

The birth-places were :—

Cook Islands	2,121
Other Pacific Islands	186
Great Britain	59
America	24
Germany	4
France	1
Norway	2
Portugal	8
China	11
Other countries (half-castes)	38
	2,454

This census, being a first attempt, could not aim at much; the natives will be able to give more information next time.

When the Cook Islands were first visited by the Rev. J. Williams the population was estimated at sixteen thousand. The returns of those who attended the missionary schools in later years show that it then exceeded ten thousand. Sickness had carried off large numbers, but a falling-off in the births was, and is, the chief proximate cause of this decay. The population has continued to decrease, but the returns for the last two years show an increase of births over deaths, very slight, but encouraging. In any case the islands are capable of holding a very much more numerous population. Much land is lying waste, though, from the size of the islands, none but small plantations can ever be expected. The Maori tenure of land is at present greatly in the way of progress in this direction, but the difficulty will, it is hoped, be overcome, and the waste lands occupied by small plantations of the coffee and fruit for which these fertile islands have proved and are proving themselves admirably adapted. The export of coffee last year approached £8,000, and, with proper and more extensive cultivation, there is no reason why it should not be very greatly increased. The same applies to other articles of produce; and the exports and imports, which, during the last three years have averaged only £40,000, may well be increased five-fold if the resources of the group are properly developed. A growing spirit of progress has been manifest among the natives during the last two or three years, and if their decadence in numbers could be arrested, or new blood introduced, there is every ground for hope that the above figures would soon be reached.

In the matter of fruit-growing, especially oranges and bananas, Rarotonga cannot be surpassed. From its position it must one day, when population has sufficiently increased in New Zealand, become the natural tropical fruit-garden for the southern parts of that colony. The distance from Auckland is less than 1,700 miles; and from its position Rarotonga cannot be much further from southern New Zealand. Auckland will always have Fiji, Tonga, and Samoa directly to the north; but Christchurch and Dunedin will yet, in all likelihood, look chiefly, if not entirely, to the Cook Islands for their supply of tropical produce.

CURRENCY OF THE COOK ISLANDS.

British coin has been the only legal currency since the 1st January, 1895; but the Chilian dollar is still used by everybody except the Government. Originally introduced as equivalent to 4s., this dollar fell after some years to 3s., and was reckoned at that equivalent till the beginning of 1894. During that year it fell successively to 2s. 8d., 2s. 6d., 2s. 4d., 2s. 3d., and finally to 2s., at which last rate it is now computed. The bullion value of this dollar is about 1s. 6d. at the present time. It is about twice the size and weight of the English florin, its equivalent as coin, and is preferred by the natives on that account. When they pay in dollars for imported goods the prices charged are nominally very high, as traders obtain the greatest part of their supplies from New Zealand where British coin only is current, and the remainder from Tahiti where French coin is the only legal currency. But the Natives get higher nominal prices for their produce in return, as merchants require that produce for remittance, to avoid the heavy loss that remitting in dollars would entail.

Those who have most produce to sell, and the least occasion to buy imported goods, are the gainers by this state of things. Wage-earners are the greatest sufferers, as the dollar is still counted to them at much the same rate as formerly. But in the Cook Islands there is no definite wages class. All the Rarotongan people have land enough to supply themselves and households with food. The land, in fact, is held by the household or family, and not by the individual cultivator. They have no rent to pay, and work only to obtain such luxuries or enjoyments as they may desire. Those who have to pay rent are natives coming from other islands. They are the chief workers for wages, but their number is not large. Under these conditions there is no accumulation of wealth, and consequently no reserve of capital. Nor is there any bank to gather for use the money held in small sums by scattered people. Hence, there is no money ready at any given moment as an inducement to casual traders to bring goods for sale at lower prices in exchange for British coin. Such traders would be obliged to take much of their return in produce, for which they could not give so large a nominal price as the regular trader, who has sold his goods at rates sufficient to cover the high exchange. The dollar may be expected to remain current until, through obtaining a more open market, or other change of circumstances, the natives come to recognise the greater purchasing power of British coin. Meanwhile, when brought here, such coin is exchangeable for dollars at the rate at present of ten to the pound sterling.

METEOROLOGICAL OBSERVATIONS TAKEN AT RAROTONGA, COOK ISLANDS, DURING THE YEAR 1894.

Latitude, 21° 11′ 35″ South. Longitude, 159° 47′ West.

Height of Cistern of Barometer above Sea-level, 12ft.

Months.	Barometer.		Temperature.						Rain.			Number of Days Thunder and Lightning.
	Mean Readings for the Month corrected to 32° Fah. at Mean Sea-level.		Mean Readings for the Month.				Mean Maximum in Shade.	Mean Minimum in Shade.	Number of Days on which Rain fell.	Inches.	Estimated Hours' duration.	
	7 a.m.	7 p m.	7 a.m.		7 p.m.							
January ...	29·923	29·942	76·1	74·1	77·4	74·7	85·9	72·9	23	8·095	67½	3
February	29·946	29·940	75·1	73·0	77·9	74·4	85·6	72·8	19	6·047	44½	6
March ...	29·991	29·987	76·6	74·4	78·0	74·8	87·1	73·7	19	5·991	46¼	7
April ...	30·005	29·984	76·7	74·2	77·4	74·6	84·0	73·6	19	7·510	54¼	3
May ...	29·977	29·972	72·1	70·2	73·5	70·7	83·1	69·7	20	11·687	92¾	3
June ...	30·028	30·025	69·3	66·3	71·4	68·3	79·6	67·1	18	6·250	47	2
July ...	30·023	30·021	69·0	67·2	71·1	68·0	80·4	66·9	17	2·573	41	...
August ...	30·077	30·070	69·0	65·3	70·5	68·1	80·0	66·4	15	3·062	48½	...
September	30·067	30·070	68·8	65·7	69·8	65·1	76·6	64·8	11	1·955	28¼	...
October ...	30·243	30·073	73·1	69·7	73·6	70·1	80·5	69·9	14	3·475	37½	...
November	29·940	29·932	73·5	69·9	73·1	69·6	80·5	69·8	19	6·372	58	1
December	29·947	29·981	74·4	72·0	74·6	72·1	81·2	70·6	26	25·010	106	1
Sums ...	...	...	...	...	...	...	...	...	220	88·027	671½	26
ans...	30·014	30·000	72·8	70·2	74·0	70·9	82·0	69·9	...	...	...	...

Months.	Extremes for each Month.				
	Highest corrected Reading of Barometer.	Lowest corrected Reading of Barometer.	Highest Temperature in Shade.	Lowest Temperature in Shade.	Greatest Daily Rainfall.
					Inches.
January ..	30·122 on 19th p.m.	29·825 on 23rd a.m.	87·0 on 7th, 18th, & 20th	70·5 on 24th	1·38 on 4th.
February	30·085 on 25th a.m.	29·821 on 7th p.m.	87·5 on 12th	69·0 on 8th...	2·25 on 23rd.
March ...	30·071 on 1st a.m.	29·912 on 3rd p.m.	89·0 on 18th and 24th	69·0 on 8th...	1·88 on 27th.
April ...	30·110 on 23rd a.m.	29·892 on 30th p.m.	89·1 on 4th and 11th	68·5 on 27th and 29th	2·93 on 30th.
May ...	30·106 on 31st p.m.	29·805 on 7th p.m.	87·0 on 15th	62·0 on 22nd	3·53 on 24th.
June ...	30·199 on 10th a.m.	29·811 on 22nd a.m.	84·5 on 21st	60·0 on 24th	1·78 on 26th.
July ...	30·143 on 30th and 31st p.m.	29·865 on 8th p.m.	84·0 on 30th	57·0 on 19th	0·53 on 6th.
August ..	30·207 on 10th a.m.	29·931 on 28th p.m.	83·2 on 4th	60·0 on 17th	0·68 on 7th.
September	30·207 on 10th a.m.	29·865 on 26th a.m.	83·5 on 1st...	57·0 on 15th and 28th	0·65 on 24th.
October ...	30·238 on 7th p.m.	29·880 on 16th p.m.	84·0 on 6th, 18th, & 27th	65·0 on 8th...	0·98 on 27th.
November	30·111 on 24th a.m.	29·721 on 19th a.m.	84·0 on 27th	65·0 on 25th	1·81 on 8th.
December	30·116 on 7th p.m.	29·788 on 5th p.m.	86·0 on 21st	67·0 on 4th...	4·58 on 10th.

J. SCARD, Observer.

PART IV.—DESCRIPTION OF LAND DISTRICTS.

THE AUCKLAND LAND DISTRICT.

By G. Mueller, Chief Surveyor.

Introductory.

The Auckland Land District covers about four and a half degrees of latitude, extending from 34° 30′ to 39° S., its greatest length being about 365 miles, from the North Cape to the 39th parallel, south of Lake Taupo, while its greatest width is about 180 miles. In the peninsula north of Auckland, indented as it is on either side by harbours and arms of the sea, and with a mean width between the Pacific Ocean and Tasman Sea of little over forty miles, the range of temperature is remarkably small. The thermometer seldom registers above 80° in the shade in the middle of summer, whilst the heat is always tempered by a cool breeze, bringing the mean summer temperature to under 70° in the shade. The frosts are hardly worth mentioning, as the minimum register is seldom below 40°; but south of Auckland sharp white frosts occur very often, more especially beyond 38° of latitude, and snow lies upon the summits of some of the highest hills or mountains in winter.

Physical Features.

This land district may be said to have no real mountains, as the most prominent peaks of the several scattered ranges or hills seldom exceed 3,000ft. in height above the sea-level, an altitude just enough—south of 38°—to clothe the last 1,000ft. with snow in the depth of winter. North of Hokianga and the Bay of Islands there is one well-defined range of hills rising to a height of 2,463ft.; whilst south of these places, and extending to the Wairoa River on one side and the Whangarei Harbour upon the other, the country is all more or less broken into ranges from 1,000ft. to 2,000ft. in height, with valleys between. The next really well developed main range lies within the Coromandel and Thames Peninsula. With a length of over 150 miles, it has an average height of over 2,800ft., commencing with Moehau, or Cape Colville, 2,800ft.; next, Te Aroha, a peak of 3,176ft.; and ending at Weraiti with a height of 2,527ft. There are two other well-defined ranges—namely, Tawairoa and Hauturu—lying between the West Coast and the Waipa basin, with their highest peak at Pirongia, which rises to 3,156ft., and is often snow-capped. There are other ranges forming the watershed between the basins of the Waikato and Waipa Rivers, and dividing both from the streams running into the western side of Lake Taupo. Their highest peak is Pureora, rising to 3,793ft. The eastern side of the land district is occupied by a very broken, forest-clad country, known as the Urewera Country, the average height of which is about 2,500ft. It is practically unexplored, and, being still in the hands of the Natives, is not as yet available for settlement. To the east of Lake Taupo lie the Kaimanawa Ranges, of about 4,500ft., and generally open on the ridges, with valleys clothed in beech forests. Nearly the whole of the Auckland Land District is indented on both coasts with harbours and arms of the sea, forming a cheap and easy means of access. Of rivers, properly so called, there are only two of any great length—namely, the Wairoa and Waikato. The first empties itself into the Kaipara Harbour, a large arm, or rather succession of arms, of the sea, giving hundreds of miles of inland water-carriage to all parts of the Counties of Hobson, Otamatea, Rodney, and Waitemata. This river is navigable from its mouth to its junction with its tributaries Wairua and Mangakahia, a distance of ninety-one miles from the sea, and for forty miles it is navigable for ships of large burden. The River Waikato has a course of 200 miles, measured from its source in the Ruapehu Mountain through Lake Taupo to the sea on the West Coast. It is navigable for river-steamers for seventy-five miles from its mouth. Another river—the Thames, or Waihou—though of no great length, affords a valuable means of inland water-carriage, and is navigable for small steamers for twenty-five miles. Generally speaking, every part of the district has an abundant water-supply, now and then lessened for a short time at the end of a very dry summer.

Plains.

Of plains proper, this district has only the stretch of country called Kaingaroa, extending from the eastern side of Lake Taupo towards the Bay of Plenty, all more or less of a pumice formation; the valley of the Thames, which is generally level, the quality of the soil varying very much in different parts; and the Central Waikato basin, already thickly settled. Here and there in the North there are level plateaux of volcanic soil, more or less densely wooded, and along the main rivers there are stretches of level country, but there are no large plains of alluvial soil such as the South Island can show.

Lakes.

Of these, which add so much to the scenery of a country, this district possesses a fair share, there being eight principal lakes, with some twenty or more smaller ones. To the north of Auckland, in the Bay of Islands district, there is only one lake of any size, called Omapere, three miles by two miles, an old crater. In the Waikato are Lakes Waikari and Whangape, the first six miles and a half long by three miles across, and the second five miles by one mile. These lakes are generally covered with numerous wild swans and ducks, and, being both connected with the Waikato River by navigable creeks, form a convenient waterway for transport of goods to settlers living around their shores. All the remaining lakes of large size are within the watershed of the Thermal-springs District, and are mostly of seven to eight miles long, and from three to six miles wide, except Taupo Moana, the queen of the North Island lakes, which is twenty-five miles long and eighteen miles broad, with a depth of 500ft. The scenery round its western shore is of the most romantic kind.

Forests.

The greater part of the Auckland Land District has been covered in the past with dense forests, which are now fast disappearing under the axe of the settler and being transformed into rich pasture-land. The only really good Crown lands fit for settlement in the North are still all covered with forest, and must be cleared and sown before any returns can follow. The area of forest-land in the Auckland District at the present time is about 1,800,000 acres north of Auckland, and 3,420,000 acres south of it. The forests contain a mixture of trees of all kinds, from the giant kauri to scrubby tea-tree or manuka, but all the bush is useful for building, fencing, and household purposes, or at any rate may be converted into charcoal for sale. Of the giant kauri (the most valuable tree in New Zealand) great quantities, worth as much as £400,000 per annum, are being yearly cut, and exported or used for home consumption. To give some idea of the size of these trees, and the amount of timber contained in them, it is estimated that upon the Crown land to the north of Auckland, in the Counties of Hokianga, Hobson, Bay of Islands, and Whangarei, there are still remaining 498,000,000ft., of a value, as the timber stands, of £1,294,000.

Soils.

With respect to the soils of Auckland, nowhere in New Zealand within such short distances is there such a diversity in the quality—a distance of half a mile often makes all the difference between rich alluvial and barren pipe-clay. To the north of the Bay of Islands and Hokianga the lands are chiefly clay and sandstone, with here and there a volcanic area intervening. In and about the valley of the Mangonuiowae River, in the Hokianga County, there is some of the richest alluvial soil in the district; and, taking the whole Crown land remaining to the north of a line between the Hokianga and Bay of Islands Harbours, the really available good land fit for settlement would be about 40,000 acres. There are large areas outside of this which will carry good grass and feed one or two sheep to the acre, after clearing and laying down in grass; and there is also land highly suitable for fruit-growing. South of Hokianga, and between that place and the Wairoa River, the soil is, generally speaking, very good, being both volcanic and alluvial. Here the Crown has probably 200,000 acres of such land fit for settlement. Immediately south of the Bay of Islands, and extending thence to Whangarei, the soil is, for the most part, clay lying upon sandstone or marl, with alluvial flats in the bottoms of the valleys; but these are, as a rule, very narrow. Within the Puhipuhi State Forest there is an area, say, of 16,000 acres, more or less, volcanic soil, over a large portion of which a fire has run; having been surface-sown with grass, it is now carrying most luxuriant pasture. Approaching Whangarei, at Hikurangi, the limestone crops out, overlying coal-deposits, and round Whangarei itself the soil becomes a rich volcanic, in a high state of cultivation. South of Whangarei Harbour, and from thence to Auckland, the Crown lands generally are of a broken character, with soil varying from alluvial swamps—as in the case of the Tokatoka Swamp of 16,000 acres—to the limestone areas round Maungaturoto, the sandstone and clay lands of Rodney County, and the poorer clay-lands immediate north of the City of Auckland, which have, however, proved eminently suitable for fruit-growing.

For about 200 miles south of Auckland the land (with the exception of the Cape Colville Ranges) is, generally speaking, far less broken, and gradually opens out into large tracts of level country in the Waikato and Waipa basins. Immediately south of Auckland the soil is rich volcanic until it is gradually superseded by the prevailing clays; the greater portion of Manukau County, for thirty miles south of Auckland, may be classed as pastoral, and is under occupation as such. The Crown areas available for settlement—say, 16,000 acres—are chiefly in the Otau Parish, varying from volcanic clay to ordinary clay land, forest-clad, and well adapted for pastoral purposes. In the Counties of Waikato, Raglan, Waipa, Piako, West Taupo, and Kawhia, there is a still greater diversity of soils; Raglan County contains large areas of good limestone country, broken, but with rich black soil, and carrying most luxuriant grass. The lower Waikato country consists of clay soil and extensive swamps, almost undrainable, but at a distance of eighty miles from Auckland is found a flat and undulating country, lying partly within the Waikato and Waipa basins, and partly within the valleys of the Piako and Waihou Rivers, formed mainly of alluvial deposits of rhyolite sands brought down from the volcanic districts. In the Kawhia County there are some 300,000 acres of excellent limestone land, a large portion of which is heavily timbered, with numerous warm valleys. Most of this land is now being acquired by the Government from the Native owners. Beyond this there is a large stretch of country consisting alternately of open valleys and forest-clad hills, a fair proportion of which is good land, both pastoral and agricultural. The County of Coromandel, with portions of Thames and Ohinemuri Counties, is chiefly devoted to the mining industry. The soil is nearly all clay, the land very broken, but suitable for pastoral purposes if cleared of the dense forest that now covers it. The western portion, however, of the Thames and Ohinemuri Counties contain large areas of alluvial and swamp lands, now in the hands of the Crown, but, through want of drainage, not yet available for settlement.

In the County of Tauranga, the clay lands extend from Te Aroha Mountain to Katikati entrance, changing, near Tauranga, to sandstone and black pumice soil of rich character, which improves towards Te Puke and Maketu, where the land is all good, and more or less volcanic. In Whakatane County there are very extensive swamps, of which large portions are drainable, and back from the coast seven miles or so are large areas of Crown lands, broken and forest-covered, open for settlement. The soil is chiefly clay or light loam, with alluvial flats in the valleys, and all well watered. This kind of country extends to the boundary of the land district. The coastal lands are nearly all alluvial flats in a high state of cultivation, and the settlers mostly well-to-do.

Review of Soils: Uses and Returns.

Briefly to set forth the capabilities of the Crown lands in the district, it will suffice to say that north of the Bay of Islands and Hokianga the land is suitable chiefly for two classes of persons—the gum-digger, and the fruit-grower or small farmer. The former has the range over large areas of Crown lands upon paying a small fee, and his earnings average from 5s. to 10s. a day. As for the latter, in and around Hokianga, with its 250 miles of water-frontage, almost anything can be grown, from the tropical banana to the more prosaic potato, whilst oranges and lemons flourish side by side with all kinds of apples, pears, and plums. Wheat does fairly well, and maize gives a return of 50 to sixty bushels an acre. Sheep also thrive; and most of the lands, when properly grassed with artificial grasses, will carry two or three sheep to an acre, but ordinary rough-grassed lands only one and a half to two sheep per acre. The clearing of forest-lands, ring-fencing and grassing them, will cost about £3 to £3 10s. per acre. The same remarks apply to the Bay of Islands and Whangarei, and to the country as far south as Auckland. Round about Whangarei district, and under similar conditions of culture, the average return for good agricultural or pastoral lands would be fully 12s. an acre per annum. South of Auckland, throughout the Waikato, Piako, Waipa, and Raglan Counties, and thence south to the district boundaries, the land is both agricultural and pastoral. All the cereals do well, wheat averaging 27 to 30 and up to 40 bushels per acre, and oats 30 bushels per acre. Potatoes average from 5 to 7 tons per acre. Dairy-farming is carried on, yielding (upon well-cultivated farms) a net profit of 15s. to 20s. an acre per annum; whilst sheep-farming yields a profit of from 5s. to 7s. 6d. a sheep per annum on very large estates; allowing for greater losses from disease, &c., the average return would still be 4s. per sheep. The cost of clearing fern and scrub is generally from 7s. to 10s. an acre, and laying down fern-land by surface-sowing and harrowing, about 17s. an acre.

The seaward counties of Tauranga and Whakatane are both agricultural and pastoral, growing wheat and maize alike to great perfection. In fact, the County of Whakatane, upon its alluvial shores and uplands, grows the greater portion of the maize produced in the district, and from the ports of Whakatane and Opotiki in one year some 34,000 sacks have been exported. In these counties the average yield of wheat is from 22 to 25 bushels per acre, oats about 29 bushels per acre, and maize 45 to 60 bushels per acre. It is quite possible within this district to select land early in the winter, fell and burn off by the ensuing summer, sow in grass in the autumn, and put on stock within twelve months from selection.

Rainfall.

The rainfall during the year averages about 39in., the greater portion of which, as a rule, falls between the 1st of May and 1st of November, or during the winter and spring months. Owing to the constant changes of wind, caused by the configuration of the coast-line, the shortness of the distance between the two coasts, and the influence, greater or less, of the trade-winds, it is quite common for one neighbourhood to have double the rainfall of another, even though the two be only twenty miles apart. Droughts of more than a couple of months are practically unknown, and grass is always abundant.

Winds.

One of the chief means whereby the great healthiness of the climate is maintained is the constant presence of fine breezes, blowing both summer and winter, the prevailing winds being north-east and south-west, and very seldom passing into really heavy gales. In the middle of summer, the sea-breeze during the day and the land breeze at night are almost unvarying.

General Products and Industries.

Timber.—The vast forests of kauri and other valuable trees have given this district the foremost place for production and export of timber. There are many safe and sheltered harbours for shipping, while streams and rivers without number form convenient highways for conveying logs to the mills or ports. Some idea of the extent of this industry may be given by quoting from the official returns made at the time of the last census. There were then forty-seven steam saw-mills situated in various parts of the district, with engines of a total of some 1,500-horse power. These mills employed over a thousand men, and produced yearly some 70,000,000ft. of sawn timber, valued at about £27,000; of timber resawn into flooring, skirting, &c., some 15,000,000ft., valued at upwards of £76,000, not to mention posts and rails, mouldings, sashes, and doors. Besides this output, in the remoter parts of the district large quantities of timber are hand-sawn. The durable puriri is converted into railway-sleepers, for which there is a great demand, and the totara is largely sought after for telegraph-posts and wharf-piles.

Kauri-gum.—The most unique production of this portion of the colony is kauri-gum, obtained for the most part from the country north of Auckland. It is formed by the hardening of the exuded turpentine from the kauri tree, and is dug out of ground from which the forest has been burnt off. The Royal Commission lately appointed elicited the fact that in 1893 the procuring of the gum gave employment to no less than 6,897 persons. Last year 8,338 tons were exported, valued at £404,567. The kauri-gum is extensively used in the manufacture of varnish, and also for glazing calico. Nearly two-thirds of the varnishes in the market are produced from this gum. The average earnings of a digger may be taken as from £1 7s. to £1 10s. per week.

Flax (*Phormium tenax*).—An industry, which is for the present in a languishing condition, is the conversion of the broad leaves of the *Phormium tenax* into marketable flax suitable for the manufacture of rope, twine, mats, mattresses, and numerous other articles. The flax-mills are scattered over different parts of the district, as near rail- or water-carriage as possible, and employ three hundred men and boys, whilst the local rope-and-twine works give work to some fifty more.

Gold.—This district has in the past produced large quantities of gold, but the area over which auriferous quartz-reefs have been discovered is limited to the Counties of Coromondel, Thames, Ohinemuri, and a small portion of Piako. In each of the last two or three years the output of this neighbourhood has been about 18 per cent. of all the gold produced in New Zealand, and was in 1894 valued at about £212,000 all told. The average annual earning per man of the miners is £116 2s. 6d., the highest in the colony. From 1878 to 1892 the Thames Goldfield alone produced some 600,000oz. It is believed that gold and silver will be obtained from the quartz-reefs in these counties for many years to come, as there are many parts where practically no systematic exploration or prospecting has yet taken place. At the Thames there is a School of Mines, under an able director, well attended, and showing good results. The average attendance of regular students is about fifty-two.

Coal.—Coal is found in most parts of this district, and is being worked with more or less success at Kawakawa, Hikurangi, Kamo, and Ngunguru, to the north of Auckland; whilst in the south there are three mines at Huntly, all turning out a good household coal. The total output of all the mines in 1894 was upwards of 95,000 tons.

Fruit.—The climate of the Auckland District is excellently well adapted for the growth of the orange, lemon, vine, and olive, as also for the fruits of England, America, and Japan. The subtropical kinds flourish about Hokianga, in the north; those of the temperate regions in the Waikato and neighbourhood. Now that the problem of how to land fruit in good condition in the London market has been solved, orchard planting is rapidly progressing, and it has been found that the culture of the hard varieties of the apple will repay export to England. Of late years a demand has set in for the poor clay-land that used to contain gum, as it is admirably suited for fruit-growing. Orchards are now planted in neighbourhoods where the soil has lain idle for years, for it has been proved that apples grown on this poor soil keep longer than those grown on richer land. More attention is being just now paid to stone fruits, for which there is always a steady local market, than to apples, which have of late years been heavily handicapped by blight. The fruit industry in Auckland is yet in its infancy, but is capable of great extension. At present peaches are the only fruit canned, though there is also a good deal done in the way of drying fruits and vegetables by the process of evaporation.

Fishing.—The sea and harbours abound in fish. At least eighteen different varieties, suitable for the table, are caught with little labour, and settlers living near the sea-coast, or any one of the many harbours and tidal rivers, can always obtain enough for all necessities. At present the canning industry is confined to mullet, of which there is a large amount exported, and an equal quantity used for home consumption. The rock-oyster is found over a large area on these coasts, and large quantities are sent both to the southern ports of the colony and also to Australia.

Chief Centres and Surrounding Districts.

The City of Auckland lies on the southern shore of the Waitemata Harbour, one of the finest havens in the colony, on a narrow neck of land between the Waitemata and the Manukau. Alike from the sea and from the neighbouring hills the city and surrounding country present a charming picture. Especially fine is the view from Mount Eden, a low volcanic hill in the suburbs. Facing the town are the green hills and white houses of the North Shore, and the remarkable peak of Rangitoto; beyond lie the many islands of the Hauraki Gulf, with the blue hills of Coromandel and the Great Barrier in the far distance. Clustered near the foot of the hill, and scattered for many miles to the southward, are charming villa-like houses, with tasteful gardens and shrubberies, while to the north-west the view is closed by high wooded ranges. The city is unrivalled for its commercial position; it has communication by sea with both sides of the Island, while the Kaipara and Wairoa Rivers leading far into the northern peninsula, and to the south the Waikato and Thames Rivers leading into the heart o. the Island, give it excellent natural facilities for inland communication. In 1891 the population of the city and suburbs amounted to 51,287 persons. The city is well supplied with gas and water, and amongst public buildings may be noticed Government House, the new Government Offices, Post and Telegraph Offices, Supreme Court, &c. There is a Free Public Library and Art Gallery, and a good Museum, containing what is probably the best Maori collection in the world. The Auckland University College is affiliated to the New Zealand University. The Victoria Arcade, the Exchange, Harbour Board Offices, hotels and clubs, as well as many commercial buildings, compare favourably with those in other parts of the colony. There are admirable recreation-grounds, including the Government Domain of about 180 acres, as well as the Botanic Garden and the Albert Park in .he centre of the city. There is a tramway system extending through the suburbs. Auckland has numerous industries, including, amongst others, ship-building, sugar-refining, timber-converting, sash-and-door manufactories; rope-and-twine, pottery, brick-and-tile, and varnish works, printing-offices, &c.

The City of Auckland is the centre from which radiate all railways, roads, and steamer-routes. From it, by rail, lies the way to all Crown lands south of the Waitemata, while the Kaipara Railway connects it with the country north of Helensville. All lands to the north and along the Bay of Plenty are reached from its wharves by the Northern Company's steamers. The chief centres to the north are:—

Warkworth, on the East Coast, forty miles from Auckland, with communication by coach and steamer nearly every day. It is a thriving township, with post- and telegraph-office, public halls, hotels, &c., and is the starting-point for the Tauhoa and Pakiri Crown lands. It is also the site of important hydraulic-lime and cement works. A good deal of agricultural and pastoral farming is carried on in its neighbourhood.

On the West Coast an important centre is Helensville, on the Kaipara Harbour, distant thirty-six miles from Auckland, with which it is connected by rail. It has all the conveniences required by travellers in the shape of good hotels, stores, &c., and is the starting-point of the river-steamers running to all places in the Otamatea and Hobson Counties. It is also one of the main centres for sawmilling, and for the export of balk timber by large vessels to other colonies, and has several flax-mills.

Dargaville, on the Wairoa River, is a town of about 500 inhabitants, with all conveniences for travellers. It may be reached by rail and steamer from Auckland three times a week. Dargaville is the starting-point of the Kaihu Valley Railway, which is open for traffic for twenty miles from the town, and from the terminus of the railway all the Crown lands in the neighbourhood are reached, even so far north as Hokianga. The town is also the centre of a very large timber export. There are only two townships of any importance north of Dargaville—Port Rawene, or Hokianga, and Kohukohu, about four miles further up. Both have post- and telegraph-stations, and comfortable hotels, with fortnightly steam-communication from Auckland.

Whangarei, on the East Coast, is distant seventy-five miles from Auckland, with which it has steam-communication twice a week. The town is a thriving and important place, having a population approaching 1,000, and is the centre of a large agricultural and pastoral country. In the neighbourhood is also a large coal-bearing and gum-producing district, while the export of oranges and lemons, which thrive magnificently on the rich volcanic soil, is increasing fast. From here a coach runs weekly to Kawakawa, upon the arrival of the Northern Company's steamer, and from it, by carriage or horse, all lands can be visited within a radius of thirty to forty miles.

Kawakawa, at the head of the tidal portion of the river of the same name, is connected by a short railway-line with Opua, the calling-place of steamers from Auckland. Kawakawa possesses good inns, and a branch of the Bank of New Zealand. From it coaches run weekly to Hokianga and Whangarei. It is the centre of a coal and gum industry, and a port of lading for those products. The old town of Russell is situated further down the bay, and has good inns, besides having post- and telegraph-office, and a branch of the Bank of New Zealand. To Whangaroa and Mangonui the Northern Company's steamers run every week. Whangaroa is famed for its exquisite scenery, and is the centre of a large timber- and gum-export trade. Mangonui is the starting-point and centre from which to visit, by carriage or horse, all the Crown lands in the Mangonui County, and from it the steamer "Staffa" runs to Awanui and ports beyond, in connection with the weekly steamer from Auckland.

South of Auckland, along the Waikato Railway, there are numerous townships of more or less importance, but no starting-point for Crown lands, until Mercer is reached at a distance of forty-three miles. It is situated at the borders of what is known as the Waikato Country, upon the Waikato River, which is tidal up to this point. Mercer is the centre of a large flax-industry, and has post- and telegraph-office and other conveniences. At sixty-five miles from Auckland by rail is Huntly, also on the Waikato River, a flourishing township, with a very large output of valuable coal. It has also pottery-, brick-, and tile-works. On the opposite side of the Waikato River large areas of Crown lands are being brought into use, and are carrying many sheep and cattle. The next town is Ngaruawahia, or Newcastle, seventy-four miles from Auckland, situated at the junction of the Waikato and Waipa River, with hotels, bank, post- and telegraph-office. It is a centre from which portions of Crown lands in Raglan County are reached, and also from it river-steamers run north and south to the various settlements. Ngaruawahia has a flourishing creamery, a brewery, and a cooperage. At eighty-four miles from Auckland the train reaches Frankton Junction, where a line branches off to Hamilton, Te Aroha, and Oxford, the main line going to Te Awamutu, ninety-nine miles from Auckland. The latter is a thriving town; but to reach available lands for future settlement the traveller passes on by rail to Otorohanga and Te Kuiti, fifteen and twenty miles further on respectively, at both of which places there are accommodation-houses, forming convenient centres for visiting the fertile undulating limestone lands in the vicinity. Hamilton is a busy, flourishing town, situated on both sides of the Waikato River, with a population of about 1,300 persons, and is the centre of a large agricultural and pastoral district. It possesses a creamery, flax-mill, brewery, and two soap-factories, besides other local industries. Cambridge, about thirteen miles by road and fifteen miles by rail from Hamilton, has a population of about 900, and is the headquarters of the Farmers' Club. It is a busy, thriving township, surrounded by good farming country. Between Hamilton and Cambridge, and in the country round, there are numerous creameries, cheese- and butter-factories; wine- and cider-making is also successfully pursued, and there are several apiaries, from which large quantities of honey are produced. There are three flour-mills in the district, one at Cambridge, one at Hamilton, and the third at the terminus of one of the before-mentioned branch lines. One hundred and sixteen miles from Auckland by rail is Te Aroha, a quiet township, celebrated for its thermal springs and good hotels.

The settlements at the Thames and Coromandel are essentially mining townships. The first is situated thirty-eight miles by steamer from Auckland, on the Firth of Thames, and at the mouth of the Waihou River. It has a population of about 5,000 persons. There is daily steam-communication with Auckland, and a railway connecting it with Paeroa and Te Aroha is now in course of construction. Coromandel is about thirty-five miles from Auckland, with which it has constant communication by steamer; it is another mining centre, situated at the head of a picturesque harbour. Tauranga, with a population of about 1,100, is situated on the harbour of that name in the Bay of Plenty. Coaches run thither from the Thames, and from Rotorua; it has also constant communication by steamer with Auckland, and with Matata, Whakatane, and Opotiki. From the fact of the harbour being the only one on the East Coast capable of receiving large vessels the town is bound to be of importance in the future. Tauranga has a new and well-appointed flour-mill upon the Waimapu River, also a chemical and sulphuric-acid works, and a cheese factory.

Opotiki, the second town of importance in the Bay of Plenty, is situated about sixty-five miles by steamer or road from Tauranga. It has weekly steam communication with Auckland, and is connected with Gisborne by a bridle-track. It is the headquarters of the maize-producing district, and has rich alluvial lands, from which good returns are obtained. It is a good starting-point from which large blocks of Crown lands suitable for pastoral purposes may be reached. The Township of Rotorua is situated on the shores of Rotorua Lake, at a distance of 172 miles from Auckland. The railway from Oxford was opened last January, so that travellers can now reach Rotorua in one day from Auckland. It is the chief township in the hot-lakes district, and has also a large area of fairly good Crown land near, adapted for pastoral purposes. Considerable quantities of sulphur are obtained from the neighbourhood.

Crown or Native Lands available for Future Settlement.

In the Mangonui County the Crown possesses 23,002 acres of fairly-good forest-land, tolerably easy of access.

In the Bay of Islands County there are only about 25,252 acres of available Crown land, both forest and open, but the Natives still own some 156,000 acres, chiefly forest land, except about Kaikohe, where it is open and rich volcanic land, most of it broken, but fit for settlement.

In Hokianga County there are some 155,643 acres of available Crown land, of good quality, nearly all covered with forest, and fit for immediate settlement. The Natives still own some 127,000 acres, almost all good land, and fit for settlement.

In Whangarei County there are about 58,972 acres of available Crown land, mostly broken and forest-clad. The Natives still retain some 54,000 acres of land, part of it very rich.

In the Otamatea County the Crown retains only about 18,550 acres, a good deal of this being alluvial swamp, and well worth draining. The Natives still own about 20,000 acres, but not much of it is fit for settlement.

In the Rodney and Waitemata Counties about 22,667 acres of Crown lands are left, most of it fit only for pastoral or fruit-growing purposes. The Natives still own about 14,000 acres in these two counties, some of it very good land.

In the Manukau County the Crown owns some 27,325 acres of broken forest land, fit for pastoral purposes. The Natives still own about 15,000 acres, a portion of which is fairly good.

In the Waikato and Raglan Counties the Crown lands amount to about 19,983 acres, all fairly good land, mostly forest, and easy of access. In Raglan County the Natives still own the freehold of 150,000 acres, all good land, but difficult to secure.

In the Coromandel, Thames, and Ohinemuri Counties there are about 15,745 acres of available Crown lands. In the last two counties a good deal of the land is swampy, and requires draining. The Natives still own 60,000 acres, much of which is very good.

In Tauranga, Whakatane, and Rotorua Counties the Crown owns 114,919 acres, nearly all forest-clad, and generally broken; but in the last-named county the Natives retain a very large area, the greater part too broken and too much covered with pumice or volcanic ash to be fit for settlement.

In the Kawhia and West Taupo Counties the Crown is acquiring from the Natives large areas of very good land, all fit for settlement and easy of access. About 300,000 acres are really first-class land, and about 1,000,000 acres fairly good land, all suitable for pastoral purposes, and accessible from the Main Trunk Railway-line.

THE TARANAKI LAND DISTRICT.

By S. Weetman (revised by J. Strauchon, now Chief Surveyor).

The Taranaki Land District is situated on the western side of the North Island of New Zealand, at about its widest part, and may be said to be the most compact and fertile district of the colony, for, with the exception of the upper half of Mount Egmont, and of the ranges adjoining, which absorb about 36,000 acres, the whole of the area—minus what is taken up by the rivers, streams, and lakes—is suitable for settlement, and certainly two-thirds of the district is good land. The gross area of the district is 2,430,000 acres.

Physical Features.

Of mountains, the principal one is the beautiful volcanic cone from which the district takes its name, Taranaki, otherwise called Mount Egmont, which has an altitude of 8,260ft. This mountain is the centre of distribution for a radius of twenty miles of the volcanic formation known as the "drift," which covers the volcanic rocks below an altitude of 3,000ft. Hummocks composed of trachyte boulders and cement crop up here and there and make excellent metal-quarries.

Beyond the volcanic formation—that is, from about Urenui on the north and Hawera on the south—the country is generally broken, and the formation is known as papa, a calcareous blue clay, capped in many places by shelly limestone.

The northern portion, between the Tongaporutu and the Mokau Rivers, contains also limestone, greensands, and coal outcrops. At Pauirau, a small tributary of the Mokau, about thirty miles from the sea, there is an isolated patch of volcanic agglomerate and tufas, and a similar formation is found at the north-eastern corner of the district.

Eastward of the base of Mount Egmont there are few, if any, mountains worthy of the name, although there are many ranges varying in height from 1,000ft. to 1,500ft. above sea-level, and, in a few instances—such as the Matemateonga and Wairia Ranges—they run up to 2,500ft.

The principal river is the Wanganui, which bounds the district on the east between Taumarunui and Pipiriki, a distance of about ninety miles. Its average width varies from 2 to 3 chains. For nearly the whole distance it is shut in by high precipitous hills, and in many places by perpendicular walls of rock. The scenery is very grand and beautiful. There are numerous rapids, but few of them are dangerous to skilful canoeists. A steamer runs regularly from Wanganui to Pipiriki, a distance of fifty-six miles. The principal tributaries of the Wanganui on the Taranaki side are the Ongaruhe, Ohura, and Tangarakau Rivers.

The next river in size is the Mokau, bounding the district on the north. It is navigable for small steamers of 20 tons or 30 tons as far as the coal-mines, about twenty-four miles from its mouth, and for canoes as far as Totoro, twenty-six miles further up. Several outcrops of coal are found on its banks, and, as limestone is also present, the river is likely to become the most important waterway of the district. The scenery on either side, although not on quite so grand a scale as may be seen on the Wanganui, is very beautiful.

The other large rivers are the Waitara and Patea. The former has its source about midway between the coast and the Wanganui River, in an easterly direction from Pukearuhe, between New Plymouth and the Mokau. It is about a hundred miles in length, and runs out at the Town of Waitara, some ten miles north-east from New Plymouth. There is a bar at the mouth, but steamers of 300 tons can enter safely in calm weather, and, although there are numerous rapids on its course, it is navigable for canoes for about ninety miles.

The Patea River rises in Mount Egmont, and, after traversing a tortuous course of about 110 miles, runs out at the extreme southern end of the provincial district. It has a bar-harbour, with a depth of 13ft. to 14ft. at spring-tides. Steamers of from 40 tons to 50 tons trade regularly to the town of Patea, which is situated a mile or so north of the mouth. The Patea is navigable for canoes for fifty miles.

Besides these rivers there are many smaller ones, and streams innumerable—in fact, no district in the world could be better watered and at the same time so secure from disastrous floods. It is estimated that between the Mokau and the Patea there are no fewer than eighty-five named streams emptying themselves into the Tasman Sea, fully sixty of which flow from Mount Egmont.

Excepting the Ngaere Swamp, a block of open land near Eltham, 3,700 acres in extent, there are no plains, properly so called, in the district, although the stretch of very fertile country lying between the Waingongoro and Otakeho Rivers, comprising an area of about 25,000 acres, is known as the Waimate Plains. Of this area 13,500 acres have been disposed of, and the remainder, 11,500 acres, has been handed back to the Natives as a reserve.

There are no lakes worthy of the name. The largest sheet of water is Rotokare, situate about twelve miles from Eltham; it is about half a mile in length, with an average width of six chains. There are also a few small lakes inland from Waverley, at the southern end of the district.

The whole of the district, with the exception of a fringe of open country along the coast from Pukearuhe to Patea, averaging three miles in width, and containing about 250,000 acres, and some valleys at the north-eastern corner of the district, about 150,000 acres in extent, was originally covered with heavy forest. Estimating the area already cleared for settlement at 170,000 acres, it will be seen that there still remain about 1,850,000 acres under bush.

The larger timber is chiefly rata, rimu, matai, tawa, kahikatea, kohekohe, pukatea, rewarewa, hinau, with a few totara scattered here and there. Among the smaller trees may be mentioned the kotukutuku or fuchsia, karaka, and mahoe.

As regards the timber industry, there are altogether fourteen saw-mills, and the total quantity cut in 1893 was 13,000,000ft., chiefly rimu (red-pine), kahikatea (white-pine), and matai (black-pine). Exported, 15,000ft.; imported, 350,000ft., mostly kauri.

An area of 72,565 acres, measuring six miles on every side from the summit of Mount Egmont, has been set apart as a forest-reserve. At about two miles within the reserve the forest begins to get stunted; and at three miles it gives place to low wiry scrub, which ceases at four miles, or an elevation of about 4,000ft. At 5,000ft. the moss ends; beyond this point to the summit the mountain is composed of loose scoriæ and lava.

A comfortable mountain-house has been built at an elevation of 3,000ft. on the northern face of the mountain, at a distance of nineteen miles from New Plymouth by the Junction and Egmont Roads. Fifteen miles can be driven over, and the remaining four ridden. This house is maintained by the North Egmont Forest Board of Conservators, and is open for the accommodation of visitors from the middle of December to the end of March in each year. The keeper acts as guide also. There are women's rooms at one end of the house, men's at the other, with large common living- and dining-room in the centre. Visitors provide and cook their own food; a small charge is made of 2s. for the first and 1s. for each successive night the visitor remains. Guide's fee for mountain, £1 per party. During the past season there were 240 visitors, remaining various periods of from one or two days to as many weeks. In fine weather, when the snow is off, the mountain can be ascended without risk by various routes.

Soils.

The volcanic soil, the boundaries of which have been already described, varies a good deal in quality. The best is believed to be on the south side of the mountain—between Stratford, Hawera, and Opunake, but not less than two or three miles from the forest-reserve boundary. It is thought that the country now being opened to the north and east of the volcanic deposit—that is, the papa and limestone formation—will, from the presence of lime, be much richer and more lasting as pasture-land than that around the mountain. The carrying-capacity of the land is, on an average, three sheep to the acre.

Grazing and Agriculture.

Taranaki is essentially a grazing and dairying district, its chief product being butter, of which, during the year 1894, there were 3,860 tons exported, valued at £251,000. There are forty-two dairy factories and sixteen creameries scattered over the district.

Agriculture has not hitherto been carried on largely. The total area under grain-crops this year (1895) was 4,371 acres; under green and other crops, 8,323 acres; while the total area under all kinds of crops, including sown grasses, was 437,008 acres.

The average yield of different grain-crops in bushels per acre was, last season: Wheat, 27; oats, 24; maize, 27; barley, 34.

Mining.

The only mining going on at present is at the Mokau Coal-mines, situate, as already remarked, about twenty-four miles up the Mokau River. The coal is sold at New Plymouth at 30s. per ton, and, when mixed with coke, answers very well for domestic purposes.

Ironsand is found in great abundance on the seashore from Mokau to Patea, a distance of 130 miles. It produces, when smelted, from 50 to 60 per cent. of iron of the finest quality. The first attempt to smelt this sand was made in 1848, and several trials have been made since, but the heavy cost of production and the absence of capital and modern appliances have, so far, retarded the industry.

Climate.

The climate of Taranaki is remarkably healthy, without any extremes of temperature. Below is given a table of mean temperatures for the year ending December, 1894:—

Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
66·5	65·3	62·3	57·5	54·2	51·8	48·9	49·7	52·2	55·3	59·4	64·5

The maximum for the year was 87·5 and the minimum 31; the mean barometric reading was 29·898in.

At New Plymouth, rain fell on 153 days during the year, the total rainfall being 63·12in., or an average of 5·26in. per month. But the rainfall varies considerably with the locality; for instance, at Waipuku, on the highest point of the railway, about east from Mount Egmont, the fall for the year was 94·84in.

Chief Towns.

The principal town of the district is New Plymouth (population about 3,700), situate on the seashore, about two miles from, and to the north-east of, the picturesque rocky islets known as the Sugar Loaves. The general appearance of the town is very attractive, and it abounds in neatly-kept gardens. The Recreation Grounds, from which a good view of Mount Egmont is obtained, form a favourite resort.

New Plymouth is 252 miles by rail from Wellington, the railway running in a northerly direction through the district from Patea to Sentry Hill, where it turns at right-angles westward for eight miles to New Plymouth. From Sentry Hill there is a branch line to Waitara, four miles distant.

The Port of New Plymouth is situated at the Sugar Loaves, two miles from the town. Protection for shipping is afforded by a concrete mole or breakwater running in a north-east direction for a distance of 1,900ft. Under the lee of this there is wharf-accommodation provided for the coastal trade. Steamers of 500 tons can be berthed here in almost all weathers. The wharf is connected with New Plymouth by both rail and road. The breakwater was built at a cost of £200,000, borrowed under security of one-fourth of the land revenue of the Provincial District of Taranaki, and the right to levy a rate over certain lands. The present rate levied is ¾d. in the pound on the capital value. The exports for the year (by sea and rail) were: General merchandise (mostly dairy produce), 5,724 tons; wool, 555 bales; fungus, 414 bales; hides, 2,512; horses, 146; cattle, 1,815; sheep, 3,859. The shipping entered during the year comprised: Steamers, 354; tonnage, 89,081; sailing vessels 8, tonnage 490.

Manufactures in New Plymouth are represented by a sash-and-door factory, a boot-, a butter-keg-, and three coach-factories. There are also an iron-foundry, a tannery, a flour-mill, and a bone-mill. The town has both water and gas laid on.

Hawera, the next largest town, is situate on the eastern edge of the Waimate Plains. The population is about 2,200. The Wellington–New Plymouth Railway runs close to it, the distance by rail from New Plymouth being about forty-eight miles. Hawera is surrounded by a first-class grazing country.

The Town of Patea is situated on the coast, at the extreme southern end of the district, and has a population of about 700. There is a splendid grazing district inland, with a large area of land yet to be opened up. The principal industry is the canning, freezing, and boiling-down of meat. A dumping-plant has been erected by the Harbour Board; and last year (1894) 6,043 bales of wool, 7,145 cases of butter, and 3,256 cases of tinned meats were shipped. Corn, grass-seed, hides, tallow, &c., are also largely exported. The exports for the year were valued at £55,019.

Stratford, a comparatively young town, lies about midway between Patea and New Plymouth. It has already a population of about 1,200, and is growing fast. The height above sea-level is 1,000ft., and the climate is bracing though somewhat moist. The main road to Auckland—known as the Stratford–Ongaruhe Road—starts here. It has been formed as a cart-road for thirty-five miles, and the remaining distance is in course of construction. If the work is continued, communication with Auckland should be opened up in about three or four years' time.

Waitara, a small seaport town of 600 inhabitants, is situated on the river of the same name, a mile up from the sea, and about ten miles north-east from New Plymouth. The meat-freezing works, which formerly did a big trade, are temporarily closed. In 1894, wool and butter were the chief exports. Sixty-one steamers and seventeen sailing-vessels, representing a gross tonnage of 5,508 tons, visited the port.

Inglewood, situated on the railway-line, sixteen miles south-east of New Plymouth, is a flourishing little town of some 650 inhabitants, rapidly coming to the front.

The only other towns of importance are Eltham, Opunake, and Manaia.

Roads and Railways.

The chief means of communication is the railway from Wellington, which traverses the district between Patea and New Plymouth—a distance of sixty-six miles. Trains run every day between New Plymouth and Palmerston North—164 miles—and on Tuesdays and Fridays there are through trains between New Plymouth and Wellington—252 miles. The Main North Road runs from New Plymouth, passing through the Towns of Waitara and Urenui; it is formed as a cart-road as far as Pukearuhe, a distance of thirty miles. From here a horse-track connects with the Mokau and Awakino Rivers, and from Awakino there is a track to Te Kuiti, in the Auckland District. About midway between New Plymouth and Waitara on the above road the Mountain road diverges and runs almost due south, and chiefly along the railway, for a distance of forty miles, connecting with the Main South Road at the Town of Hawera. This is at present the principal road in the district, tapping, as it does, large numbers of district roads, and passing through the Towns of Inglewood, Midhurst, Stratford, Eltham, and Normanby.

The Ohura Road branches from the Mountain Road at Stratford, and is formed for a distance of thirty-five miles; it is being extended into the interior so as eventually to connect with Auckland, and will open up a large area of fertile country.

The Main South Road from New Plymouth follows the trend of the coast to the south, and was at one time the coach-road to Wellington. It passes through the Villages of Omata, Oakura, Okato, Rahotu, Otakeho, Manutahi South, and Kakaramea, and the Towns of Opunake, Manaia, Hawera, and Patea.

The Junction Road runs south-east from New Plymouth, and crosses the Mountain Road and railway at Inglewood. It is formed and metalled for seventeen miles, and formed only for a further distance of twenty-five miles beyond this point. Eventually it will connect with the Ohura Road at a distance of thirty-two miles from Stratford. This road crosses a number of district roads; hence its name.

The Opunake Road runs from Stratford to Opunake, twenty-six miles, skirting the southern base of Mount Egmont. It is formed and metalled for twelve miles from Stratford; the remainder is open for horse-traffic only.

The Eltham Road runs from Eltham to Opunake, twenty-five miles, connecting with the Opunake Road at Punehu, seven miles from Opunake. This is formed throughout and partly gravelled.

The other main roads in course of construction are the Awakino Road, branching from the Main North Road at the Mimi; the Motukawa Road, diverging from the Junction Road near Tarata; the Rawhitiroa Road, leaving the Mountain Road near Eltham; the Waitotara Valley Road, starting from the Main South Road at Waitotara Township; and the Otaraoa, Moki, and Okoke Roads.

Crown Lands available for Settlement.

	Acres.
Crown lands available for settlement	538,000
Native lands undealt with	434,460
	972,460

Of the above, about 150,000 acres are open valleys and hills in the north-east corner of the district; a good deal of it more or less pumice-land, but still suitable for grazing. From the rest we may subtract perhaps 10,000 acres for area absorbed by rivers, gorges, &c., and there remain 812,460 acres of forest-land yet to be dealt with. Of this area perhaps 50,000 acres, made up of strips of flats and terraces, may be suitable for agriculture, while the balance—762,460 acres—will be good pastoral land.

It may be said, in conclusion, that there is every sign of genuine prosperity throughout the district, which has advanced rapidly during the last four or five years, and will, no doubt continue to do so.

HAWKE'S BAY LAND DISTRICT.

By T. Humphries, Chief Surveyor.

The Land District of Hawke's Bay comprises that portion of the east coast of the North Island from Cape Turnagain, in latitude 40° 30′, northwards to Lottin Point, about thirty miles beyond the East Cape.

It has a seaboard of 300 miles, with an average depth from the coast of forty-five miles, and embraces an area of 6,063,000 acres. Its western limit is defined by the Ruahine, Kaweka, Ahimanawa, Raukumara, and other high ranges that form the watershed between the rivers flowing through it to the sea, and those that run to the west coast and the Bay of Plenty.

Physical Features.

The Ruahine Range extends northwards for about sixty miles from the Manawatu Gorge as far as the valley of the Ngaruroro River. Its altitude varies from 3,000ft. to 6,000ft., and for a considerable distance its summit is snow-clad during the winter months.

The Kaweka, a shorter range, divided from the Ruahine by the Ngaruroro River, attains an altitude of 5,650ft., is very rugged and steep, and a prominent feature in the landscape in winter, covered as it then is with snow.

From these two ranges, which fall very abruptly on the Hawke's Bay side, the land slopes gradually to the sea, forming in some parts fine rolling hills—the essence of a sheep-country—in others extensive plains, with comparatively little poor soil.

Northwards from the Kaweka there is a series of forest-clad ranges of varying height, stretching away in the direction of the East Cape. Hikurangi, the highest point, is a bold peak with an elevation of 5,606ft., rising so abruptly on all sides that the ascent can be made only at one point, and that with difficulty.

The only lake in the district of any extent is Waikaremoana, so famous for its magnificent scenery. It lies about thirty-five miles inland of the Wairoa (Clyde), and is eleven miles in length, with a breadth at the widest part of about eight miles. Nestled among precipitous mountain-ranges, wooded to the water's edge, with numerous bays and inlets, it has a natural beauty hardly to be surpassed.

From Wairoa there is a formed road to within six miles of the lake, and for the rest of the way a good riding-track.

The principal plains are: (1.) The Ruataniwha, some fifty miles south of Napier. This is 120 square miles in extent, is for the most part occupied as sheep-runs, and carries a large quantity of stock. (2.) The Heretaunga Plain, with an area of ninety square miles, lying immediately to the south of Napier. This is rich alluvial land; a large portion is thickly settled, the remainder used for grazing and agriculture. The only other plain of any extent is at Poverty Bay. It has an area of of sixty-five square miles, is very fertile, well cultivated, and bears a large population.

The land district is well watered throughout by numerous rivers and streams, but none are navigable except the Wairoa and Turanganui, and these only for vessels of light draught. They are both tidal, and serve as ports to the Towns of Wairoa (Clyde) and Gisborne.

Communication.

The chief outlets from Napier are three in number. First the Napier-Palmerston Railway, which traverses the centre of the southern half of the district for its whole length of 100 miles, and may be called the main artery of communication. Parallel to it throughout runs an excellent gravelled road, which was made before the construction of the railway. On either side there are numerous branch roads, which act as feeders, making a very complete system of internal transit. Another main road runs in a westerly direction to Kuripapanga, distant forty-five miles, a favourite resort in the summer time, removed as it is from the heat of the country near the coast. A coach runs thither twice a week, and on thence to Inland Patea, where the Napier Road meets the roads to Hunterville, Tokaanu, and the Wanganui River.

The part of the district served by these two main lines—viz., that between Napier and Woodville—contains the greater portion of the population, and from the extent of arable land within it is likely in the future to be very thickly peopled. At last census (1891), notwithstanding that so much of the Native land in this part is unoccupied, and in its natural state, the holdings embraced 2,300,000 acres, carrying 2,519,534 sheep and 52,060 cattle, and the population, inclusive of towns and villages, was 27,593 persons.

The only main road northwards from Napier is the coach route to Taupo, which, soon after leaving the fertile Petane Valley, begins to traverse poor country, and twenty-five miles out enters the light pumice soil.

From Napier to the Wairoa the journey must be done on horseback, as there is a break of thirty-five miles between Tongoio and Mohaka unfit for wheeled traffic; but this is being gradually remedied. As a natural consequence, the traffic between these two places has to be done by small steamers.

From the Wairoa a main road runs northward, through the Village of Tiniroto and on to Gisborne, a distance of seventy-five miles. For a considerable distance it runs through hilly country, and, as it has not been gravelled, wheeled traffic is suspended during the winter months; but a coach runs weekly for nine or ten months out of the year.

Between Gisborne and Opotiki, in the Bay of Plenty, communication is not good. The road, which is 120 miles in length, has been formed only to the edge of the Motu Forest, a distance of fifty miles. In the neighbourhood of the forest a large area of Crown lands has been taken up and settled in the last two or three years. The rest of the journey must be done on horseback.

In the country north of Gisborne, formed roads for wheeled traffic are few in number, and not continuous, but small steamers trade regularly along the coast, calling in at Waipiro, Tuparoa, and Awanui, Kawakawa, and other small bays.

Pastoral Industries.

The Hawke's Bay Land District is pre-eminently a sheep-grazing country. The aggregate of the holdings at the date of last census was 3,802,064 acres, and notwithstanding that a considerable amount is unused, or forest country—and therefore unproductive—while other parts are made use of for tillage only, it was at that time carrying 3,587,221 sheep, besides 75,693 cattle. The value of the wool exported during the twelve months ending the 31st March 1895, was considerably over a million pounds sterling, that shipped from Napier alone representing £753,494.

Freezing-works have been established at Woodville, Waipukurau, Tomoana, Napier, and Gisborne, and the export of frozen meat from the port of Napier alone during the same period was of a value of £189,029, while further shipments were made from Gisborne. This industry gives employment to a large number of persons, both directly to those engaged in breeding, shearing, freezing, and shipping, and indirectly to those who labour at bushfelling, grass-seed sowing, fencing, and otherwise opening up new country. Nor must the cutting of the immense amount of firewood consumed at the works be forgotten. All this benefits the settler with limited means, by providing him with funds to improve his holding, and to this is due, in a great measure, the general prosperity.

Agricultural Pursuits.

Agriculture is not carried on to the extent it might be with so much land suitable for root- and grain-crops. No doubt this is due to the profits made in sheep-farming. It is chiefly confined to the Heretaunga Plains and the flat lands near Gisborne. The soil is favourable to root-crops; potatoes range from 12 to 15 tons to the acre, and in some instances exceed this amount. Only a moderate quantity of grain is grown; barley, for which the soil seems well adapted, returning from 20 to 60 bushels of a good sample to the acre.

Dairying.

Settlers are now turning their attention to dairying, and lately factories have been established in the bush districts at Norsewood, Maharahara, and Woodville, whilst several others are in contemplation. At the last-mentioned town a cheese-factory has been in existence for some years, and turns out an excellent article much sought after in other parts of the colony.

Timber Industry.

The timber industry is considerable, numerous saw-mills being in full work in different parts of the district. In the forest between Takapau and Woodville there are twelve, with an estimated yearly output of 10,000,000ft. This tract of forest is the one most used for milling purposes, and will yield a plentiful supply for a long time to come, notwithstanding that for years past a large amount of totara timber has been taken out of it to send to other parts of the colony. Further north there is no totara in any quantity, though rimu, white-pine, and other milling timbers are to be found scattered throughout the forests, and in the Poverty Bay District puriri is found in some quantity.

Other Industries.

Other industries, such as fellmongeries, soap-works, boot-, coach-, and sash-and-door factories, &c., are established in the principal towns.

Climate.

The climate is generally of a mild character, and, though hot along the coast-lands in the height of summer, it is, owing to the dryness of the atmosphere, not so relaxing as in parts of the island farther north. The rainfall is light, excepting in the bush districts and high inland country.

Napier itself is recommended by many medical men as a resort for invalids suffering from pulmonary complaints, chiefly on account of the mildness of its winter season.

Towns.

Napier is pleasantly situated on the peninsula known as Scinde Island, which is joined to the mainland by a narrow shingle-bank of several miles in length. It is a busy town, with a population of 9,000. The business part is on the flat land at the foot of the group of hills that take up the greater part of the peninsula. These hills, formerly barren and waste, are now occupied by numerous private residences, and the very general tree-planting has given the upper town a distinctive and pleasing character. There is an excellent water-supply, derived wholly from artesian wells of large size, and pumped by machinery to reservoirs on the tops of the hills. The shipping trade, as the large exports show, is especially active during the wool and frozen-meat season. It is at present carried on at Port Ahuriri, about a mile from the town; but will, before long, in a large measure be transferred to the fine breakwater which is now advancing towards completion.

Gisborne, the trade-centre and port of what is known as the Poverty Bay District, is a prosperous town of about 3,000 inhabitants, rapidly increasing in size and importance, as the large quantity of unimproved land in the Cook County is fast becoming settled and made productive. At the date of last census there were nearly half a million of sheep in the county, and since then much forest land has been cleared, and the stock largely increased in number.

Clyde, the county town and port of the Wairoa County, is picturesquely situated on the Wairoa River, about three miles from the mouth. The river is navigable for small craft as far as the village of Frasertown, twelve miles further up.

With a few exceptions, the towns and villages to the south of Napier are all situated on the line of railway running from Napier to Palmerston North. The principal are Hastings, a rising town of 3,000 inhabitants, Waipawa, Waipukurau, Danevirke, and finally Woodville, about three miles from the Manawatu Gorge, and distant ninety-eight miles from Napier. It is at this end of the district that the Crown has, in the last few years, successfully planted settlement, and, in place of the continuous forest known as the Seventy-mile Bush of earlier days, there are now prosperous townships, with various thriving industries established.

Crown Lands.

The land held by tenants of the Crown under the various systems of tenure amounts to about 460,000 acres, and there remains about the same quantity not yet dealt with in any manner.

The latter is, for the most part, suitable for pastoral purposes only, any fit for agriculture lying in small, isolated spots, widely scattered, and such as could not be selected independently of the surrounding inferior land. Nearly the whole is broken forest country, fitted more for sheep than cattle, and having an average carrying-capacity, when cleared, of about one sheep to the acre, though the best of it might possibly graze from two to three. The land is chiefly in the Hangaroa and Motu Districts, and the back-country of the Waiapu County.

About 48,000 acres are now open for selection. Of these, 6,000 are in the Nuhaka North Survey District, not many miles from the Mahia Peninsula. This is hilly forest country, with light soil, but well suited for grazing purposes. In the Waiau Survey District, near Waikaremoana, there are over 8,000 acres, also hilly country, of limestone formation. In the Motu District, between Gisborne and Opotiki, there are about 17,000 acres open, and in the Mata and Hikurangi Survey Districts, situated from fifteen to twenty miles inland from Waipiro, there are 13,000 acres of rough forest limestone country, at the present time not easy to get at; but a road to the block will shortly be put in hand.

Native Lands.

Of the Native lands in this district, a very considerable portion has been leased to Europeans, but there still remains in the hands of the Maoris a valuable estate, comprising both agricultural and pastoral country, and including some 800,000 acres of excellent land. This land lies for the most part in the Waiapu County, towards the East Cape.

THE WELLINGTON LAND DISTRICT.

By J. H. Baker, Assistant Surveyor-General.

The Wellington Land District is bounded on the north by the Districts of Auckland and Hawke's Bay, on the west by that of Taranaki, on the east by the sea, and on the south and south-west by Cook Strait. The area contained within these limits is about 6,000,000 acres. It lies between the parallels of 39° and 41° 30′ south latitude; its greatest length north and south is about 180 miles, and its mean width east and west about sixty miles.

General Physical Features.

The district is divided into two well-defined parts by a mountain range, which forms part of the backbone of the North Island. At its northern end this range—there known by the name of Ruahine, and averaging a height of about 4,000ft.—divides Wellington from Hawke's Bay; but after passing the point where it is intersected by the Manawatu River, the range takes the name of Tararua for many miles, until, at about forty miles from the termination on the shores of Cook Strait, it divides into two main ranges, known respectively under the general names of Rimutaka and Tararua, both ranges averaging from 2,500ft. to 3,500ft. in height, the highest point being Mitre Peak, 5,154ft. Parallel to the main range, and divided from it by the Wairarapa Plain and the undulating country to the north, are a series of ranges at a few miles inland from the East Coast, known as the Puketoi, Taipo, Maungaraki, and Haurangi Ranges. Lying on the northern border of the district are the Kaimanawa Ranges, an offshoot from the Ruahine. They are for the most part open and grass-covered, rising to a mean height of about 4,500ft. Westward from the latter mountains, and divided from them by a deep, broad valley, in which flow the Waikato and Wangaehu Rivers, is the volcanic chain of mountains containing Ruapehu, 9,008ft., and Ngauruhoe, an active volcano, 7,515ft. high. The long sweeping curve of Cook Strait, forming the south-western limit of the district, is bordered from the Patea River to within thirty miles of Wellington by a comparatively level and undulating country, now nearly all under cultivation, having an average width of about fifteen miles. This country is one of the finest parts of the colony, and is celebrated for its stock-raising capabilities. It was originally in a great measure open, though the southern part, where the plain is narrowed in between the sea and the Tararua Range, has a good deal of forest on it, now fast disappearing under the axe of the settler.

Inland of this coastal plain, at varying distances from the sea, the country gradually rises to a mean height of about 1,500ft. to 1,800ft., and becomes a good deal broken in character. It was originally forest-clad almost throughout. It is much cut up by rivers and streams flowing from the interior to the sea, of which the principal, commencing from the north, are these: The Waitotara, the Wanganui, the Wangaehu, the Rangitikei, the Oroua, the Pohangina, and the Manawatu, which last, after leaving the gorge in the Ruahine Ranges, runs through level land to its mouth in Cook Strait. This broken country, being everywhere composed of papa or marly formation which takes grass excellently, promises in the near future to be a large sheep-carrying district.

At about fifteen miles south of the volcanic peaks of Ruapehu Mountain the papa country terminates in a fairly well-marked escarpment, giving place to a more level and undulating country formed of volcanic matter, the greater portion of which is forest-clad, though on the south-east, east, and west sides of that mountain there are open grassy plains, of no great fertility, but yet suited to pastoral pursuits.

To the eastward of the main range formed by the Rimutaka and Tararua Ranges is the great depression known at its southern end as the Wairarapa Plain, which gradually rises northwards from the lake of that name into wooded, somewhat broken country, of no great height, at a distance of some forty-five miles from the sea. From here the country falls again slightly to the Upper Manawatu River, the depression in this part being marked by the extensive flats in the neighbourhood of Pahiatua, and by the shallow valleys of the Mangahao, Mangatainoko, and Tiraumea Rivers and their branches. For thirty miles from the sea this great valley is mostly open, with patches of forest here and there, but becomes more plentifully wooded at the base of the Rimutaka and Tararua Ranges. The quality of the soil varies from light and stony, on the Wairarapa Plains proper, to rich papa country, as the northern end is approached. The southern end of this country is watered by the Ruamahanga River and its tributaries. Generally the district is a pastoral one, though agriculture is also pursued successfully. The neighbourhood of the Puketoi Ranges is in many places composed of limestone, and promises in the future to become a very rich pastoral district, such as will carry a considerable population. In the forks formed by the Tararua and Rimutaka Ranges the Hutt River takes its rise, and runs in a southerly direction through an undulating or level country, finally falling into Port Nicholson. The valley contains some very fine land, generally held in small holdings.

Plains.

The two most important of all these have already been mentioned. On the eastern side of the main range the Wairarapa extends northward from the lake of that name for about forty-seven miles, with an average width of about nine miles. In some parts, especially on the flats along the Ruamahanga River, the soil is alluvial and rich; in others, though stony and unfit for cultivation, it is nevertheless grassed, and carries stock well in the winter and rainy seasons. The plain is watered by the Waiohine, Waingawa, and Ruamahanga Rivers, and contains altogether about 200,000 acres, much of which is good agricultural land. On the other side of the district, west of the Tararua and Ruahine Ranges, there is a large block of land so nearly level that it may be called a plain, extending from Paikakariki (thirty miles from Wellington) to Marton (a few miles north of the Rangitikei River), and contains about half a million acres. Starting as a narrow strip between the hills and the sea, the plain widens out by degrees until at Fielding it is at least twenty miles in breadth. Along the beach runs a fringe of sandhills, but behind this is to be found some of the best farming and grazing land in the colony. There are two plains inland—Murimotu and Waimarino—both lying some 2,200ft. above sea-level, in the neighbourhood of Mount Ruapehu, the former to the south and the latter to the north-west of the mountain. The soil is covered with a coarse native tussock, and, though capable of carrying stock, is of a light porous nature, and cannot be classed as agricultural land.

Rivers.

First among these is the Wanganui—"the Rhine of New Zealand"—with a length of over 110 miles from its source, near Mount Tongariro, to its outlet. The Rangitikei, the next in size, rises in the Ruahine Mountains, and flows through the Awarua country, where it is joined by the Hautapu and other large tributaries. After a course of over a hundred miles it reaches the sea some little distance below the Township of Bulls, on the West Coast. The Manawatu is third in importance. Rising in the Ruahine, it flows through the picturesque Manawatu Gorge, joining the sea just below the port of Foxton. Lesser rivers on the West Coast are the Waitotara (north of Wanganui), the Wangaehu (which takes its rise in Mount Ruapehu, and from its source to its mouth is so strongly impregnated with sulphur that fish cannot live in it), the Turakina, and the Otaki. The only other rivers of any size are the Hutt (Heretaunga), emptying itself into the Wellington Harbour, the Ruamahanga, flowing through the Wairarapa Valley and lakes into Palliser Bay, and on the East Coast the Pahaou, Aohanga, and Akitio.

Lakes.

The only lake of any size in the Wellington District is the Wairarapa, lying between the Rimutaka and Haurangi Ranges, towards the southern end of the Wairarapa Valley. It is about twelve miles long and four broad, and is connected by the Ruamahanga River with Onoke, a small lake separated from Palliser Bay by a narrow shingle spit only. A passage through the spit is opened from time to time when the lake rises above its natural level and overflows the low-lying flats along its margin. Water-fowl of every kind—among them numbers of black swans—are to be found round about these lakes.

Scenery.

The views obtained from the railway-line in the ascent and descent of the Rimutaka Range are among the best in the neighbourhood of Wellington, and the road through the Forty-mile Bush was long considered one of the most beautiful drives in the North Island; but much of its pristine beauty has been destroyed by the felling of the bush consequent on the increase of settlement. The same may be said of the Manawatu Gorge, famed in the old coaching days for its lovely scenery, but now sadly marred by the construction of the railway-line. The most beautiful drive now left is through the Awarua Bush, from Ohingaiti to Moawhango. From this road, as it winds round the spurs, most charming glimpses are obtained of the Rangitikei River and the blue hills beyond, and at other points the traveller looks up deep ravines where the graceful fern-tree stands out in bright relief against the dark green of the native bush. Another road from Pipiriki, on the Wanganui River, to the Murimotu Plain, traverses one of the most magnificent forests in the North Island. Here the bushman's axe has felled only the timber standing on the road-line, and the track runs beneath the shade of the largest and stateliest maire and rimu known. Beautiful as these drives are, the scenery on the Wanganui River is more lovely still. A few miles below Taumaranui the river enters a series of gorges, shut in by high precipitous cliffs. Sometimes the canoe glides slowly through quiet reaches, sometimes shoots rapids which make the traveller hold his breath till they are passed, and then again traverses places where the water is ever in turmoil, boiling and eddying in whirlpools, taxing the energies of the most skilful Native steersman, and testing the nerve of the most courageous tourist. These experiences, with the views obtained of the banks, densely wooded even where the papa rock rises almost straight from the water's edge, make the eighty miles journey from Taumaranui to Pipiriki an event not easily effaced from the memory. Between Pipiriki and Wanganui an excellent steamer is now running, so that the beauties of the lower part of the river may be seen by all without trouble or discomfort.

Forests.

The Wellington District is essentially a forest country, for out of the 6,000,000 acres contained within its borders 3,400,000 are still under bush. By far the largest forest is the Waimarino, having an area of at least three-quarter million acres, a large portion of it being nearly level land, containing magnificent timber, principally totara, maire, matai, rimu, and other pines. This forest is as yet hardly touched, though one sawmill has lately been started at Raetihi to cut timber for the settlers now making their homes in the neighbourhood. The distance from the settled districts or any port will render the timber in this part useless as a marketable commodity until the country is opened up by the proposed Auckland Main Trunk Railway.

The next in size is the Rangitikei-Hautapu Forest, containing an area of about 400,000 acres, a considerable portion in the Awarua Block being first-class milling timber, which will be available as soon as the extension of the Hunterville Railway-line taps it. Between this and the Waimarino Forest there is a large extent of bush land, drained by the Turakina, Mangamahu, and Wangaehu Rivers, extending up to the Wanganui River, and containing about 350,000 acres. Very little of this, from its inaccessibility, will be utilised for saw-milling purposes, but a great deal of it, together with a further block of 230,000 acres on the west side of the Wanganui River, will be cleared by the settlers and sown down with grass. A further block of about 100,000 acres of forest-land lies in the Pohangina Valley and on the slopes of the Ruahine Range. A large portion of this has been taken up and is now being settled.

The forest-land on the West Coast extends from Pukerua to the Manawatu Gorge, on the west side of the Tararua Range, and contains an area of about 380,000 acres, the bulk of it being fit only for turning into pasture country. The most available part of it, alongside the Wellington–Manawatu Railway, is being extensively cut into by sawmillers at Levin and other places on the line.

After this in size is the forest commonly known as the Forty-mile Bush, containing 260,000 acres. It lies immediately north of Masterton, and is tapped by the Wairarapa Railway and the proposed extension to Woodville. It is at present being quickly denuded of timber by the sawmills established at Eketahuna and Pahiatua, and by the increasing number of settlers. A tract of fully 100,000 acres lying to the east of the Puketoi Range cannot be utilised for milling purposes, as it is not tapped by any branch railway-line, and its distance from the main line would render the business unprofitable. Nor are there any suitable ports along the coast where timber could be shipped.

The other forests are, one near Lake Taupo, the Wairarapa–Tararua Forest on the east side of the Tararua Range, and its continuation on both sides of the Rimutaka Range, and the Haurangi Forest on the east side of the Wairarapa Lake. These consist for the most part of birch-covered hills, and cannot be considered as valuable for milling purposes.

Soil.

It may be said that the Wellington Land District contains within its borders a greater quantity of good land than any other in the North Island, very little, except the mountain-tops, being unfitted for use, while some of it is of very superior quality, suited for the growth of the productions of every temperate climate. As much of it is still forest-clad, settlers must look forward to having to make their farms by felling and burning the bush before grass can be sown, and, as it takes from ten to fifteen years before the plough can be used in bush-land, grazing, for which the climate and soil is admirably adapted, will be the principal industry for some time to come. It is generally calculated that the cost of felling and burning ordinary bush varies from 25s. to 35s. an acre. To this must be added about 20s. for seed and fencing. It is no uncommon thing for a return to be received at from twelve to eighteen months after felling. The usual practice is to put sheep on to the new lands soon after the grass has obtained a good hold. The process of improving the lands by the gradual "logging up" and burning of the fallen tree-trunks is a long one, but it pays in the end, for in this way fine pasture-lands are obtained on the hills, and agricultural lands on the flats.

Climate.

The climate of Wellington District is healthy and mild, the mean annual temperature (in the city) being 54·8, whilst the mean rainfall is 48·3in. per annum. The rainfall differs, however, according to locality. Inland and near the ranges it is much greater. The top of Ruapehu Mountain is covered with perpetual snow, which lies also on the tops of Kaimanawa, Ruahine, and Tararua in the winter. Frosts are heavy in the interior.

Harbours and Ports.

The coasts of Wellington are not so well supplied in this respect as are some other parts of the colony; but what is lost in number is made up in a great measure by the excellence of the chief haven—Port Nicholson—which, from the position it occupies, at the meeting-point, as it were, of the coastal traffic of both Islands, and from its sheltered position and depth of water, may be considered one of the most convenient harbours in the world. The Wanganui River, which has been considerably improved by artificial means, is the second port in the district, and has a considerable trade carried on by coastal steamers. Patea and Manawatu Rivers are also used by coastal steamers, whilst several other places along the shore afford shelter and stopping-places, according to the direction of the wind. The extension of railways along both coasts has, in a large measure, done away with the inconveniences arising from want of harbours.

Towns.

The capital of the colony—Wellington—is situated in the south-west angle of Port Nicholson, on Lambton Harbour. The wharfage accommodation here is second to none in the colony, and the wharves present always a busy scene of life with the numerous steamers and sailing-vessels continuously loading or discharging. As many as four ocean-going steamers are not unfrequently seen alongside, loading with wool, frozen meat, and other products, for conveyance to Europe. The port possesses a patent slip at Evans' Bay, within a short distance of the city. Founded in 1840 by the New Zealand Company, the city occupies the flats skirting the original shore-line, long since obliterated by the reclamation of the foreshore, which is now mostly covered with fine buildings. Rising close behind the old shore-line is a range of hills, the lower parts of which are all built over. The population of the city at the present time is about 35,000. Being the seat of Government, it contains the residence of the Governor and the head-quarters of the Government departments, which are placed in what is said to be the largest wooden building in the Southern Hemisphere. There are several noticeable public buildings, amongst which must be mentioned the Parliamentary Buildings, containing a valuable library, General Post Office, Government Life Insurance Offices, Public Library, School of Art, and Harbour Board Office. The Colonial Museum, under the management of Sir James Hector, and the Botanical Gardens, are also worthy of notice. The city is lighted by electricity, and its streets are well kept and clean, whilst an excellent supply of water is obtained from the Wainui-o-mata River, on the other side of the harbour. The principal industries are represented by iron- and brass-foundries, factories, sawmills, soap-and-candle works, boot-factories, aërated water, meat-freezing works, coach-building, rope-and-twine works, sash-and-door factories, brick-, tile-, and pottery-works, besides a match-factory and innumerable other smaller works of various kinds. The city is increasing with rapid strides; its excellent position, together with the fine back-country, places it in the front rank of New Zealand towns. Its principal suburbs are Onslow, Melrose, and Karori, each containing from 1,000 to 2,000 inhabitants.

The Township of Petone is situated near the mouth of the Hutt River, seven miles from Wellington, on the railway-line. It had in 1893 a population of 2,175, and is a rising township, containing the Government Railway Workshops, a woollen factory, and a meat-freezing establishment. The Lower Hutt, almost immediately adjoining, has also a large population, and some well-built residences with beautiful gardens. The Upper Hutt, situated at the head of the valley, has many small farms, owned by some of the very early settlers. The railway here starts the ascent of the Rimutaka Range.

Featherston, situated at the foot of the Wairarapa Valley, fifty-one miles by rail from Wellington, is a small township, with butter and cheese-factories in the neighbourhood. Roads lead from it to Martinborough and the East Coast, and also down the Wairarapa Valley to Palliser Bay.

Greytown North is situated three miles off the main line of railway, and near the middle of the Wairarapa Valley, fifty-three miles from Wellington. The chief industries are saw-milling and coachbuilding. The population in March last was 1,175.

A few miles further north is the Town of Carterton, where are to be found timber-mills, cheese-factories, &c., and a population of over 1,100 persons. There is some splendid farming land in this locality on the banks of the Ruamahanga River.

Masterton is situated at the head of the Wairarapa Valley, on the Wellington–Eketahuna Railway, sixty-seven miles from the capital. It is the centre of an agricultural and pastoral country, and has a population of about 4,000. It is lit by gas, and has several industries, such as fellmongery, rope-making, flax-mills, coach-factory, &c., and, in addition, has some excellent fish-breeding ponds, from which many of the rivers in the colony have been supplied with trout. An important coach-road leads from here through a fine pastoral district to Tenui, and on to Castlepoint on the East Coast, where a large quantity of wool is annually shipped to Wellington for export.

North of Masterton is the Opaki Plain, and beyond is the entrance of the Forty-mile Bush, which is now fast becoming a thriving pastoral, agricultural, and dairying district. Butter-factories have been established at Hastwell and Mauriceville, where a large number of Scandinavians are settled, forming hard-working and thriving communities.

Eketahuna is the present terminus of the Government Railway, ninety-four miles from Wellington. From there a main road leads to Alfredton, and up the Tiraumea Valley. The road is in process of extension through the east Puketoi country, now being opened up in farm-homestead settlements, and will eventually lead to Weber and Danevirke, on the Napier Railway-line.

Pahiatua, a rising township about fifteen miles beyond Eketahuna has a population of nearly 1,000 inhabitants. It is the county and market-town of a large and improving district, and will probably also become the centre of a large dairying industry. Coaches run daily from Eketahuna through Pahiatua, and eleven miles farther on to Woodville, where they connect with the main railway-line. Several branch roads run from Pahiatua into the adjoining country, the principal one leading to Makuri through a beautifully-wooded gorge. From there another branch road passes over the Makuri saddle into the East Puketoi country.

On the West Coast, Pauatahanui, at the head of the Porirua Harbour, is the centre of a small agricultural community of early settlers, the old coach-road to Paikakariki running through it; and there is a branch-road leading over to Hayward's in the Hutt Valley. Paikakariki, twenty-seven miles from Wellington, may be considered the commencing-point of the West Coast settlements, which are springing up in every available valley along the coast. At Otaki, forty-seven miles from Wellington, there is a small township, and a large Native settlement. At Manakau, Levin, and Shannon, small townships have arisen since the Manawatu Railway Company opened up the land round about, much of it being rich farming and grazing country. Between Shannon and the Manawatu River there is a large raupo or flax swamp, named Makurarua, containing at least 15,000 acres of fine alluvial soil, which is being gradually drained by the company, and will at some future period become the finest possible grazing-land.

Foxton, a township at the mouth of the Manawatu River, is a small shipping port, containing about 1,100 inhabitants. It is connected with Palmerston by a branch railway, and is the outlet for a large area of good agricultural land.

Palmerston North is an inland town at the junction of the Wellington–New-Plymouth and the Palmerston-Napier Railways, situated on a fine plain in the midst of a most excellent farming district at a point eighty-eight miles from Wellington, and 110 miles from Napier. Its population at the present time is upwards of 6,000. It is lit with gas, and has a good water-supply. A fine bridge across the Manawatu River connects it with the Fitzherbert Block, a tract of rich agricultural land. Nine miles from Palmerston is the Township of Ashurst, at the mouth of the Pohangina Valley, up which settlement has now extended for a distance of twenty-two miles. Several large farm-homestead association blocks have been selected up this valley.

Feilding, 104 miles from Wellington by rail, with a population of 2,100, is becoming one of the most important towns on the West Coast, as it is the centre of a very fine locality, and the outlet for a large tract of inland country, the forest on which is fast being felled. A coach-road connects it with Birmingham and Pemberton, about thirty-two miles distant. On the seaward side for a distance of twenty miles there is also much good agricultural land, extending on the north-west to the Rangitikei River, and including the Township of Halcombe. There are several dairy factories established in the neighbourhood.

Marton, 123 miles from Wellington, with a population of 1,100, one of the earliest of the West Coast settlements, is also the centre of an agricultural country. The Township of Bulls, on the north side of the Rangitikei River, lies between Marton and the coast. From Marton Junction the southern part of the North Island

Main Trunk Railway extends up the Rangitikei Valley to Hunterville, a good-sized township in the centre of a grazing district, and from thence as far as Mangaonoho, twenty-three miles from Marton; from there a coach-road has been made to Ohingaiti, beyond the Makohine, where a large viaduct has to be built before the railway-line can be continued. From Ohingaiti the coach-road has been made to Turangarere, and from thence to Tokaanu, on Lake Taupo, in the Auckland District.

Wanganui, situated near the mouth of the river of that name, is the oldest town after Wellington, from which it is 151 miles by rail—the distance by sea being only a hundred miles. It is the centre of an excellent farming district, and has a considerable trade, and several manufactories. Near the mouth of the river are freezing works, the meat from which is conveyed by lighters to the large English steamers lying off the mouth of the river. The town is lit with gas and has a good water-supply. Not far from it are some extensive railway workshops. Altogether it is a thriving place, with a population of about 5,600. The Wanganui River is navigable for a light-draught steamer up to Pipiriki, a distance of eighty miles, and for canoes a further distance of eighty miles to Taumaranui. A branch road extends from Pipiriki through the Waimarino Forest to Ohakune, and on to Karioi on the Murimotu Plains, thence by way of Turangarere and Moawhango to Napier.

Crown or Native Lands available for Future Settlement.

On the east side of the Wairarapa Lake there are 43,000 acres, known as the Dry River-Haurangi Block, but this land can be considered only second-class pastoral country. It has not been opened for sale yet, owing to the difficulty of getting proper access into it.

Not far from the Dry River Block is another block of 23,000 acres of pastoral country still under forest, which, owing to its rough and mountainous character, will probably not be settled for many years to come, until other more suitable country has been taken up.

On the west side of Carterton and Eketahuna three blocks, called Kaitangata, Te Mara, and Kaiparoro, containing about 58,000 acres of second-class pastoral country, have lately been opened up for sale. The lower portions have been taken up and are being settled, but there is some land still open for application. There is a further area of 155,000 acres in the Tararua Mountains, some of the valleys in which may eventually be settled, but the difficulty of getting roads into it is too great to be undertaken at present.

Out of the Awarua Block, lying north of Ohingaiti, several blocks, containing over 140,000 acres, have lately been purchased from the Natives by the Crown. A great deal of this land is of first-class quality, though other parts will be treated as second-class land only—not that the soil is inferior, but because the land is too broken to be worked otherwise than as pastoral country in good-sized holdings. Several blocks have lately been surveyed; one of 17,000 acres west of Mangaweka, or Three Log Whare Township, will be opened for sale in October of this year, and another of 9,000 acres between the Hautapu and Rangitikei Rivers is now under survey and will be opened for selection in the summer. A further sale of quarter-acre sections in the Mangaweka Township will take place, and the Taihape Township will be subdivided into town or suburban lots, of which some will be offered for sale in the autumn. A block of 12,500 acres lying south-east of Moawhango will be opened for application on the completion of the survey now being made—probably in January or February of next year. The North Mangaweka Village Settlement will be opened for application in October, and two improved farm settlements, one between the Hautapu and the Rangitikei, the other south-east of Moawhango, will be balloted for as soon as the plans are ready. There will also be opened, in October, small village-settlement blocks at Mangatutu and Pakihikura, in the Ongo district, east of the Rangitikei, as well as the Karewarewa Village Settlement in the Marton Farm Homestead Block.

North of the Kawatau, on the east side of the Rangitikei, a block of 20,000 acres of second-class pastoral country is to be opened for selection in October or November, and a further area will be roaded and prepared for sale during the ensuing summer.

Waimarino.—Three blocks, containing about 10,000 acres, have had road-lines laid out through them, and are now open for application. A further block of about 40,000 acres, on the Retaruke River, has had roads surveyed through it, and will be opened for selection next summer. There is an additional block of 27,000 acres, which will probably be offered as grazing-runs later on. The rest of the Waimarino country, containing about 250,000 acres, is more or less broken, and will probably be opened as second-class pastoral country or small grazing-runs to enable it to be taken up in larger sections.

Tongariro, Rangipopo, and Kaimanawa Blocks.—105,000 acres have been acquired by the Crown, but none of it is likely to be taken up for settlement for a long time to come

Native Lands.—The blocks under lease to Europeans contain about 475,000 acres, the principal being the Murimotu, Rangipowaiau, Owhaoko, Mangohane, and Ruanui, occupied by Mr. Studholme; and the Oroumatua, leased to Mr. Birch. Of others passed through the Native Land Court there are about 526,000 acres which are fit for settlement, the principal being the balance of the Awarua and the Motukawa, Raketapauna, and Rangiwera Blocks in the central district, Raetihi in the Waimarino district, and Tauakira on the Wanganui River. Those not suitable for settlement at present are the Te Hautu, Ohuanga, and Kaimanawa, on the east side, and the Oahukura on the west side, of Tongariro Mountain, containing an area of about 345,000 acres.

The Native lands which have not passed the Native Land Court contain an area of about 140,000 acres, the principal being the Tupapanui and Mairekura Blocks, between the Wangaehu and Wanganui Rivers, and some others on the west side of the latter river.

Pastoral and Agricultural Industries.

The pastoral industry is by far the more important, the total area in grass in 1895 being 1,908,510 acres as compared with 58,983 acres under crop. Of the area in crop 3,584 acres were in wheat, 19,477 in oats, and 23,115 acres in turnips or rape, the rest being in potato or other crops.

The following figures will show the average return per acre of grain, &c., for the year 1895: Wheat, 26·08 bushels; oats, 24·40 bushels; barley, 22·37 bushels; hay, 1·39 tons; potatoes, 5·61 tons.

The area in sown grass now exceeds that in any other district in the colony, though the area under crop is very small as compared with either the Otago or Canterbury Districts. The stock carried in 1894 included about 3,794,000 sheep, and 171,611 cattle, the horses being returned in 1891 as 30,542. The total area in gardens is given as 1,388 acres; in orchards, 3,093 acres; and in plantations, 6,339 acres.

Dairy Industry.

Both soil and climate are well adapted for the production of butter and cheese, and hence we find creameries and butter-factories increasing in number very considerably each year, and the export constantly augmenting.

Seven butter- and nine cheese-factories were returned in September, 1895, as at work in the Wellington Provincial District.

Phormium Tenax.

The principal flax-mills working are at Featherston, Carterton. and Martinborough, in the Wairarapa, and at Foxton on the West Coast. This industry fluctuates greatly, in accordance with the price ruling for the dressed article. In 1891 thirty-four mills were at work, employing 723 men and 171 boys; the machines driven by water-wheel or engine working up to 401-horse power; the turn-out being 4,595 tons of dressed fibre, valued at £72,290, the largest output in the colony.

Timber Industry.

Sawmills are to be found in different parts of the district where the means of communication are sufficient, the timbers cut being principally totara and red pine, both of which are largely used in house construction and other works. Others of the native woods are very beautiful, but are utilised only to a small extent.

The principal mills are at Pahiatua, Eketahuna, Masterton, and Carterton, in the Forty-mile Bush and Wairarapa districts, and at Levin on the West Coast, besides which there are several mills in Wellington for dressing the rough material. In the whole district there were in 1891 forty-eight mills, of an aggregate of 820-horse power, engaged in this industry, employing 615 hands, the output of sawn timber being 27,044,739ft., and the total value, including posts and rails, resawn timber, doors, sashes, &c., £128,522, which, next to Auckland, is the highest for any provincial district in the colony.

THE MARLBOROUGH LAND DISTRICT.

By H. G. Clark and Sidney Weetman, Chief Surveyors.

Boundaries.

The Marlborough Land District, occupying the north-east corner of the Middle Island, and containing about 2,560,000 acres of land, is bounded generally on the north and east by Cook Strait and the East Coast as far as the Conway River; thence by that river to its source; from this point, by straight lines, rivers, and the summits of watersheds to the western side of Tennyson Inlet, Pelorus Sound. From the Conway to Pelorus Sound it abuts on the Land District of Nelson.

The widest part of the district is from Cape Campbell to Tophouse, a distance of about sixty-seven miles.

Physical Features.

The district throughout is generally mountainous, but none even of the highest peaks are covered with perpetual snow, although Tapuaenuku, the highest of the Inland Kaikouras, attains an altitude of 9,462ft. Of the Seaward Kaikouras, or Looker-on Mountains, the highest points are Kaitarau and Whakari, which are 8,700ft. and 8,500ft respectively. There are several lesser peaks, from 4,000ft. upwards.

The view from Kauhautara Bluff, south of Kaikoura Settlement, looking northwards, when the Looker-on Mountains are snow-capped, is said to be one of the finest in New Zealand.

Geologically, the district may be briefly described as follows: North of the Wairau River the rocks belong chiefly to the Upper and Lower Devonian series, with a belt of Silurian between them, embracing the country along the west of Queen Charlotte Sound to Cook Strait. Within these series auriferous deposits are found, and at present worked at Mahakipawa, Wakamarina, and Wairau Valley. In Endeavour Inlet an antimony-mine has been worked for some time. The country south of the Wairau River may be said to belong chiefly to the Carboniferous Age, with patches, along the coast and up the Clarence Valley, of Cretaceo-Tertiary and Lower Greensand formations; while along and between the Awatere and Clarence Rivers volcanic formation and numerous intrusive dykes occur. The Red Hills also, at the head of the Wairau Valley, are of volcanic origin.

Coal has been discovered in the neighbourhood of Picton, and in the Clarence Valley, but none has been as yet successfully worked within the district. A narrow belt of Tertiary limestone, suitable for building purposes, extends, with small interruptions, from Cape Campbell to the boundary of the Canterbury Provincial District. The Marlborough land may be divided into three classes: Open land, generally covered with associated grasses; forest-land; and intermediate, or land partly forest, partly covered with scrub, fern, or other rank vegetation. This original condition of the soil naturally gave rise to a localisation of industries, and a very unequal distribution of settlement. Thus the open country was taken up for pastoral purposes; in the forest country the timber industry was developed, and the intermediate land passed into the hands of farmers. Though agriculture is now extending into the pastoral and forest country, and considerable areas of forest-land have been cleared and laid down in grass, the portions of the district characterized by these respective industries are still well defined.

In the northern part of the district, bounded by Cook Strait, numerous deep fiords and bays run far into the land. The principal of these are Queen Charlotte and Pelorus Sounds, which are remarkable for the number of their reaches and inlets, and the beauty of their precipitous and forest-clad hills, culminating in Mount Stokes, 3,943ft. above the sea.

Rivers.

Four considerable rivers, the Wairau, Awatere, Clarence, and Conway, rise towards the western boundary of the district; the two former, running east and north, fall into Cook Strait; the two latter, taking a southerly and easterly course, discharge into the sea on the eastern side of the Island. These rivers water large and fertile valleys, but none can be entered by vessels except the Wairau, which is navigable for small steamers for about ten miles from its mouth.

Plains.

The Wairau Plain, containing about 65,000 acres, on which stands Blenheim, the capital of Marlborough, is the principal block of agricultural land within the district. The soil, generally good, is, on the lower or seaward side of the plain, extremely fertile, especially near Blenheim, which is surrounded by numerous fine gardens, well sheltered with trees. The average yield of wheat for the plain is about 20 bushels per acre; of oats and barley, 30; of peas, 30; and of potatoes, 6 tons per acre. Hops have been successfully grown for many years in the neighbourhood of the town, but, owing to the high price of labour, their cultivation has not extended. The plain, traversed in all directions by good macadamised roads, and dotted over with numerous homesteads, standing in clumps of trees amidst well-cultivated fields, has already an old-world appearance. More than half the population of the Marlborough Land District—12,782, according to the last census—is centred in the Town of Blenheim and on the Wairau Plain. Besides this plain there are several thousand acres of terrace flats and valleys along the larger rivers, notably at Starborough, on the Lower Awatere.

Lakes.

There are not any lakes worthy the name. The largest is Kapara te Hau, more familiarly known as Grassmere, situate on the coast between the Awatere River and Cape Campbell. It is about three miles in diameter, and very shallow, being, indeed, no more than a lagoon, as during a dry season there is little or no water in it.

The only other known lake is Lake McRae, situate in the open country between the Awatere and the Clarence Rivers.

Forests.

The portion of Marlborough north-west of the Wairau River, extending to the boundary of the Nelson Land District, and including the County of Sounds, in all about 280,000 acres, was originally covered with dense forest. In the valleys and on the lower hill-slopes, rimu, kahikatea, matai, totara, miro, and tawa were the principal forest-trees. The higher portion of the hills and steep spurs clothed with the various species and variety of birch (beech), to which along the shores of the Sounds were added pukatea and kohekohe, the latter locally called cedar.

Since 1860 sawmills have been at work in various parts of the district. Thirty-two mills have been erected, and have worked for longer or shorter periods. Havelock, on the Pelorus Sound, is at present the head-quarters of the timber trade.

The hills along the shores of the Sound will, for many years, furnish birch sleepers. There are other timbers left in places, but nowhere sufficient to justify the erection of a mill, unless pukatea wood, hitherto neglected, could be utilised. It is a light, tough timber, well adapted for packing-cases. The quantity of pine timber remaining in the Kaituna and Onamalutu Valleys is small, but there is a good supply of birch and other wood, suitable for fencing and firewood. On these valleys the Wairau Plain is mainly dependent for timber.

The Pelorus Valley, with its tributaries the Rae and Wakamarina, still contain about 200,000,000ft. of convertible timbers, exclusive of the birch, of which there is a large amount of the best quality on the hills and terraces.

In the neighbourhood of Kaikoura, along the base of Mount Fyffe, and in the Hapuku Valley, there is another small block of forest-land in which three small sawmills have been erected. The quantity of timber suitable for sawmill purposes in this block is very limited, but it will furnish the neighbouring country with firewood and fencing for many years.

During the past year about 6,000 acres of forest have been cleared and grassed.

Soils and their Uses.

The Wairau Plain, which is the principal block of agricultural land, has been already dealt with. The second agricultural centre is in the neighbourhood of Kaikoura. The land extending along the base of Mount Fyffe, between the Kohai and Hapuku Rivers, about 13,000 acres in extent, is held in small or moderate-sized farms; the soil is good, the block known as "The Swamp," between Mount Fyffe and the Peninsula, being particularly rich. In the Pelorus, Kaituna, and Onamalutu Valleys, and in the Sounds, settlers following in the wake of the sawmills have already converted much of the land worked over into grazing-farms. The land is of three descriptions—alluvial flats, terraces, and hill-sides. On the flats in the larger valleys the soil is rich, producing heavy crops of oats, peas, beans, and potatoes, wherever it has been brought into cultivation. The terrace-land varies much in quality, but generally grows good grass, as do also the hills on which tawa formerly grew; the birch country being very barren. On the small bush-farms cattle-grazing is the chief pursuit. Out of over 7,000 head kept in Marlborough, 4,000 belong to the forest country.

Grazing.

About 1,680,000 acres of the Marlborough Land District are at present devoted to keeping sheep; in this are included 883,000 acres of Crown land, held under leases that will expire for the most part in 1896. The leaseholds in the northern parts of the district contain a large extent of scrub- and fern-covered country, now producing little or no food for sheep, but capable of improvement. The total number of sheep depastured is 828,518, distributed as follows amongst the counties into which the land district is divided: Marlborough County, 540,618; Sounds County, 90,000; Kaikoura County, 197,900. On the natural pasture of the open country merino sheep are kept almost exclusively, the land carrying from half to one sheep per acre. In the forest country, on sown grass, the land keeps from two to four crossbred sheep per acre. Along the shores of the Sounds large areas of hill-land have been taken up on lease, and are now being cleared and laid down in grass expressly for keeping sheep, but generally throughout the forest country the holdings are small or of moderate size, hence this is, after the Wairau Plain, the most populous portion of the district. The export of wool during last year amounted to 12,890 bales.

Industries.

Gold-mining has been carried on for some years, principally at Mahakipawa, Wakamarina, and Wairau Valley, but at present not much gold is being obtained.

At Endeavour Inlet, in Queen Charlotte Sound, the Star Antimony Company has been at work for some years, with a fair amount of success. A new process of smelting has lately been commenced.

There are at present six sawmills at work within the district—one at Kaikoura, and the others in the Pelorus, Kaituna, and Onamalutu Valleys, and in Pelorus Sound. The principal one is Messrs. Brownlee and Co.'s, in the Pelorus Valley, the annual output being about 3,000,000 superficial feet. The value of the sawn timber shipped in 1892 from the company's wharf was £6,616. The mill at Kaikoura turned out 120,000ft.

Owing to the low price of dressed flax several of the mills have recently been closed, there being only four or five now at work. The quantity of hemp shipped during the year was 3,753 bales.

In connection with one of the mills, a rope-factory has been established, in which binder twine made of short flax or tow is the main product.

There are two flour-mills at work—one at Spring Creek, near Blenheim, owned by Messrs. Redwood Bros. This is a complete roller-mill, driven by water-power, and can turn out about 14 tons of flour in twenty-four hours. It is electric-lighted, and the sack-working machinery is driven by electric motor. The mill is not worked full time, but during the year the output was 721 tons of flour and 317 tons of bran and sharps. The other mill, which is also worked by water-power, is Messrs W. B. Parker and Co.'s, at Blenheim.

A dairy factory—the first in the district—was opened at Spring Creek in November, 1893. It contains all the latest improvements in machinery. At present it is being supplied by 557 cows. The daily average supply of milk is 700 gallons. 700cwt. of butter were produced during 1894, of which 496cwt. were shipped to London. There is also a cheese factory and two creameries.

A meat-preserving factory has lately been reopened at Blenheim.

Climate.

The original distribution of the open and forest lands of Marlborough was entirely due to climatic causes. At Cape Campbell, one of the barest places in the district, the annual rainfall is only 23·25in.; in the Pelorus Valley, the centre of the forest country, it is over 65in. This difference between the climates of the north-western and south-eastern portions of the district explains why the artificial pasture-land, when compared with the natural pasture, supports such a large amount of stock. Winter and spring are the wettest seasons, hence the dry climate is not unfavourable for agriculture. Wherever the soil is suitable, crops sown in winter and harvested in early summer can be successfully grown. Everywhere near the coast the range of temperature, considering the latitude, is very small. The thermometer seldom falls below 30deg., or rises above 78deg. Along the shores of the Sounds the mildness of the winter, owing to the curious distribution of land and water, allows lemons, oranges, passion-fruit, figs, and other sub-tropical fruits to be grown in favourable situations. On the lower hills and terraces of the forest country the chestnut (*Castanea vulgaris*) grows rapidly, and commences to bear fruit in five or six years. A few trees planted in the Pelorus Valley some twenty years ago are now yielding annually about 2cwt. of nuts a tree. In all parts of the low country the common English fruit-trees—apple, plum, pear, cherry, &c., yield abundantly, the fruit, owing to the clearness of the atmosphere, being of excellent quality. In the high country, where snow falls occasionally during winter, red, white, and black currants can be produced in such quantities that with little labour they might be made an article of export to the warmer parts of Australia.

Towns.

The chief town, Blenheim, is situate on the Wairau Plain, at the junction of the Opawa and Omaka Rivers—a third river, the Taylor, would join at about the same point were it not that when not in flood it disappears beneath the surface, about three miles south of the town. Blenheim has been termed a miniature Christchurch, doubtless from its extreme flatness. Considering this, its streets are surprisingly crooked and lamentably narrow. It does not possess any public or other buildings worthy of note. It is, however, well planted with deciduous and evergreen trees, which help much to relieve an otherwise monotonous appearance. It is about eighteen and a half miles from Picton by rail, and about nine miles from the sea by the Opawa River, which is navigable for small steamers. Blenheim is lit with gas, and supplied with water, principally by artesian wells. The population at the last census was 3,294.

The next town in importance is Picton, the principal port, only fifty-three miles by sea from Wellington. This little town, both in position and appearance, may be said to be the antithesis of Blenheim, being most picturesquely situated at the head of Queen Charlotte Sound, and nestling among hills, some of the higher ones still densely covered with birch and other forest. There is frequent communication with Wellington and Nelson by steamers averaging 500 tons, and vessels of 1,200 tons can lie at the wharf at low-water, where there is a depth of 25ft. Vessels of the largest tonnage can approach within half a mile. The direct exportation of frozen meat from Picton commenced in 1892, when 16,433 carcases were shipped; last year Messrs. Nelson Brothers, who have a freezing-hulk at work, shipped 25,632 carcases.

Picton possesses a malting establishment, also producing for export, as the excellent quality of the barley grown on the Wairau Plain insures a ready market. A small quantity of oysters, mostly procured in Queen Charlotte Sound, is annually exported from Picton; with culture the supply might be almost indefinitely increased, many of the sheltered bays in both sounds being well adapted for the purpose. What is now being done along the Marlborough coast is a mere trifle compared with what might be accomplished if capital and knowledge were brought to bear on the fishing industry. Around the whole coast, from the mouth of the Conway to near the French Pass, the sea abounds in fish. Within the Sounds and amongst the islands of Cook Strait, hapuku, schnapper, moki, barracouta, raturi, kahawai, and rock-cod are extremely plentiful. Immense shoals of the southern herring (*Clupea sagax*) and of anchovies (*Engranlis encrasicholus*) frequent the inlets at certain seasons of the year, and quantities of fresh fish are exported from thence to various places within the colony. As steamers arrive at and leave Picton almost daily, shipments can be made without delay to all parts. Picton possesses a good gravitation water-supply. Its population is about 800.

Havelock, situate at the head of Pelorus Sound, is, as has been already stated, the present head-quarters of the timber trade, Messrs. Brownlee and Co.'s steam sawmill, at the mouth of the Pelorus River, being only a mile or so from the town. A steamer runs fortnightly between Havelock and Wellington, delivering mails at Ketu Bay, Maud Island, Homewood and Maori Bay, all in Pelorus Sound. In addition a small steamer has lately commenced running within the sound, which also receives a weekly mail from Picton, conveyed by steamer to Torea, in Queen Charlotte Sound, and thence overland and by boat to Kenepuru and Manaroa. Between Picton and Havelock there is a service twice a week, *viâ* Cullensville, on the Mahakipawa Goldfields. The population of Havelock is about 320.

The Town of Kaikoura, the greater part of which is built on a raised shingle-beach, is situate at Kaikoura Peninsula, near the southern boundary of the district. The town, with the adjoining settlement of small farms, forms one of the most picturesque spots in New Zealand, lying as it does under the Seaward Kaikouras, or Looker-on Mountains. At the back of the town the peninsula, which is composed of Cretaceo-Tertiary limestone, rises abruptly for about 100ft., and affords splendid sites for dwelling-houses. Kaikoura is connected with Blenheim by a weekly coach service, the distance being about ninety-five miles. There is also direct steamer-communication with Wellington and Lyttelton. The population of the town is about 370.

Roads and Railways.

The only railway is that between Picton and Blenheim, about eighteen miles and a half in length. The train starting from Picton runs twice a day, and three times on Saturdays. The railway has been completed for a distance of three miles south of Blenheim—as far as the racecourse at Riverlands, whither the train runs on race-days.

The main north road to Nelson—distant seventy-eight miles—is a good metalled road nearly the whole way. It runs up the Wairau Valley from Blenheim for about six miles, crosses the Wairau River into the Kaituna Valley, which it follows as far as Havelock—about twenty-eight miles. It then runs up the Pelorus and Rae Valleys, and ascends by easy gradients to the Brown Saddle, where it crosses the boundary into Nelson. An excellent coach-service—probably the best in the colony—has been established for some years, the coach running to and from Nelson on alternate days, covering the distance in eleven hours.

The main south road, running over the Taylor Pass into the Awatere Valley, and through the Starborough, Flaxbourne, Kekerangu, and other properties, connects Blenheim with Kaikoura and the south, and is a good road during dry weather, although it might be much improved in places.

The portion between the Clarence River—over which a fine bridge was built some years ago—and the Hapuku River runs along the coast under steep and picturesque hills covered with forest. Were a road constructed south of Kaikoura to connect with Cheviot it would open up some of the most beautiful coast scenery in New Zealand.

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Agricultural.

Nelson has little land suitable for agriculture, most of it already taken up. On the Waimea Plains is grown excellent barley, a small quantity of which is exported. Oats and chaff are sent in large amounts to the West Coast and elsewhere. Hops also form one of the chief exports. Wheat, maize, rye, and root-crops of most varieties are grown, and fruit is plentiful. The weekly wage of a farm-labourer is 20s. with board; without board he would receive 6s. a day. Ploughmen can get 25s. per week with board; without, 7s. 6d. a day.

Pastoral.

The total area of pastoral lands held under the Crown by 141 tenants on the 31st March, 1895, amounted to 610,696 acres. By the last census returns, of April, 1891, there were 30,717 cattle and 898,738 sheep in the district. As the agricultural land is limited, settlers are turning their attention to the timbered mountain-slopes for grazing purposes. These, when the timber is felled and burnt, and the ground sown with suitable grass, will, after three to four years, carry about two sheep to an acre on fair soil, and more on the limestone country. The cost of felling and burning green timber is from 15s. to 20s. per acre; cost of mixed grass-seeds and sowing, about 15s. per acre; and a good paling-fence on ordinary bush-lands with double No. 8 wires at top and bottom, with ½in. palings and 7in. posts sunk 2ft. in the ground, can be erected at about 12s. per chain.

Mining Portion of District.

The western side of the Nelson District was a *terra incognita* till about the year 1863, when gold was first discovered in large quantities. Miners flocked in at first from the other goldfields in New Zealand, then from Australia, California, and other parts of the world, until in 1865 the whole coast-line was peopled from Broken River in the north to Jackson's Bay in the south. Mining, at first altogether alluvial, developed into quartz-reefing, and hydraulic-sluicing of large areas. The agricultural lands about the Grey and Inangahua were taken up and cultivated; and, as mining became a more settled industry, the miners occupied and tilled the non-auriferous alluvial flats in the many valleys: hence at the present time a number of homesteads are scattered throughout the district.

Reefton and its neighbourhood forms one of the chief quartz-mining districts in New Zealand; and the West Coast, including Westland, contributes about 45 per cent. of the total gold raised in the colony. The oldest alluvial field is at Collingwood. Among other minerals found in the district are: silver, copper, chrome, antimony, manganese, and hæmatite. Extensive deposits of coal are found on the West Coast, within the areas of the Grey and Buller Coalfields Reserves. Coal is also found in Collingwood, in Blind Bay, and in West Wanganui Inlet; and there are numerous smaller areas of coal-bearing strata here and there throughout the district. The output from the mines at work within the district during the year ending 31st December, 1893, was 371,732 tons. Copper-ore is found in a serpentine rock-formation near Nelson, but the companies which have worked the ore have not hitherto been successful—the last one, "The Champion," failing from want of sufficient capital. Deposits of chrome-ore are also found here. Silver-ore has been worked in the Collingwood District; and at Parapara, in Blind Bay, there are widespread deposits of hæmatite iron-ore, combined with limestone and coal, waiting only for capital to develop them. There is also a small industry in flax. It will be readily gathered from the above brief description that mining is the chief industry of the Nelson District.

Towns.

The chief town is Nelson, situated at the head of Blind Bay, in 41° 16′ S., and surrounded on all sides, except the north, by mountains reaching an elevation of 3,500ft. With a mean temperature of 54° 8′ Fahr. it possesses a climate almost unequalled for its beneficial effects on invalids suffering from pulmonary diseases. There are many picturesque spots in the suburbs, and the town itself, with its cleanly-looking buildings and well-kept gardens, is one of the most charming spots in

New Zealand. There is an old-established Boys' College, and a High School for Girls, besides Government and other schools. The Anglican Pro-Cathedral, built on the summit of a central hill, memorable as being the site of fortifications erected in the early days of the settlement for defence against an expected attack of the Natives, is a striking feature. The Roman Catholic Church, Convent, and school-buildings cover a large extent of ground. There is also at Stoke, a small village three miles from Nelson, a central Catholic Orphanage, surrounded by grounds of considerable area. There is a good supply of excellent water from a reservoir in the hills at the back of the town, and the streets are well lighted with gas. The several Government departments are housed in one roomy building, containing a large hall used for Supreme Court sittings and other public purposes. Nelson has a small natural harbour, formed by a boulder-bank running for eight miles parallel to the shore, deep enough at high tide to admit vessels of 1,000 tons burden. It is a port of call for the Union Steamship Company's coastal steamers, and has a small local fleet plying between the West Coast, Blind Bay, Picton, and Wellington. The town is reached from the eastward by a good main road from Marlborough. A railway-line has been constructed up country to the southward for thirty miles, passing through the farming villages of Stoke, Richmond, Brightwater, Wakefield, Foxhill, and Belgrove. Leaving for the West Coast by a good main road, the traveller starts from the Belgrove Station on one of Cobb and Co.'s coaches, crosses Spooner's Range, the Clarke and Hope River saddles, and enters the Buller Valley at the junction of the Hope, about sixty-seven miles from town. He then enjoys a succession of views of mountain-gorge scenery, and, after traversing a gorge of seventeen miles in length, arrives at the Lyell, 107 miles from his starting-point. This is an alpine township, in a small quartz-mining neighbourhood. Here is a fine cast-iron-girder bridge, spanning a rocky gorge of the Buller, and springing boldly from a bluff on the northern side. At 116 miles the junction of the Inangahua with the Buller is reached, the main road continuing to Reefton, with a branch road twenty-eight miles to Westport, which for twenty miles passes through some of the grandest river-gorge scenery in New Zealand.

Westport, the town next in importance to Nelson, is situated at the mouth of the Buller River. The harbour is sheltered from southerly gales by Cape Foulwind and its outlying rocks, and is accessible in nearly all weathers. A large sum has been spent on a system of harbour-works, designed by the late Sir John Coode. Westport is the place of shipment for the coal-mines lying northward as far as the Mokihinui River. The character of this coal for steam purposes stands almost unrivalled. The long line of coal-staiths on the northern bank of the river, with a fleet of steam-colliers loading alongside, does not fail at once to impress a visitor with a sense of the importance of the trade. Though much has already been done, yet the industry, from the extent of the coal-bearing strata, is capable of much larger expansion when the necessary capital can be found. The Westport–Ngakawau Railway to Mokihinui, connects with the mines and conveys the coal to the port. At the foot of the Mount Rochfort plateau, nine miles from Westport, is Waimangaroa, and on the plateau itself is Denniston—both coal-mining villages. The latter, built at an elevation of 1,960ft., is said to be the highest township in New Zealand. On a clear day it is well worth a visit, for the sake of enjoying the magnificent panoramic view of the southern Alps, which reach their highest point in Mount Cook, 12,349ft. high, about 100 miles south. South of Westport are the alluvial gold-mining centres of Addison's Flat, Cronadon, Nine-mile Beach, and Charleston.

From the Inangahua Junction, the main road continues southward through the Inangahua Valley, passing through cultivated lands, which are being gradually won from the heavy bush, and at a distance of 136 miles from Nelson reaches the township of Reefton. Here, as at Westport, are good hotels, and, as in every one of the larger coast towns, a hospital receiving a Government grant in aid. This town was the first in New Zealand to be lighted by electricity. Through the Midland Railway Company's extension of the Grey–Brunner Government line, Reefton is now connected by rail with Greymouth, from whence it is for the most part supplied. About two miles inland from Reefton is Black's Point mining township, with several batteries at work in and about the place, a visit to which is generally paid by tourists wishing to see something of the gold-mining industry. Other small mining townships are: Boatman's, Capleston, Antonio's, Noble's, Orwell Creek, Hatters', Nelson Creek, and Twelve-mile.

Leaving Reefton by rail, and passing into the Grey Valley through a short tunnel, and by a bridge over the Grey River, Totara Flat is reached, nineteen miles distant. Here there is a considerable area under cultivation. Seven miles farther on is the decayed mining township of Ahaura. Small townships are springing up along the railway-line, and several large sawmills are working.

At the Grey River Gorge, eight miles from Greymouth, we enter the township of Brunnerton. This place is the oldest centre of coal-mining in the district. Owing to the effect of the coal-smoke from the coke-ovens on the surrounding cliffs and bush, and the appearance of the numerous miners' cottages nestling on the mountain-slopes, it has the look of a veritable "Black Country," such as may be seen in some coal-districts in England.

Several large sawmills are at work between this place and Greymouth, which we reach at a distance of 180 miles from Nelson, the centre of the Grey River from its junction with the Arnold being the southern boundary of the district at this part. The Midland Railway Company's contract line, to connect with Canterbury by way of Arthur's Pass in the Otira Gorge, has been constructed on the Westland side of the Arnold River to Lake Brunner, the eastern shores of which it skirts for some distance, and from thence to the Teramakau River.

The town of Greymouth is situated on the south bank of the Grey River, in the Westland District, and is the shipping-port for the products of the coal-basin included within the area of the Grey Coalfields Reserve, the larger portion of which lies on the north bank of the river in the Nelson District.

The small town of Cobden is situate opposite the town of Greymouth, and is connected with it by a substantial bridge.

Roads, Tracks, &c.

Situate on the coast, fifty miles north of Westport, is the Karamea Special Settlement, principally settled from the Nelson and Motueka Valley districts. This part of the district contains some excellent but heavily-timbered land, and is reached from Westport by a good road, connecting with the Westport–Ngakawau Railway at the Mokihinui River. A bridle-track, also, connecting with Collingwood and Golden Bay, is nearly completed by the Government. This track passes along the coast northwards, thence up the Heaphy Valley to the Golden Downs, and down the Aorere Valley to Golden Bay. Here again is another coal-basin, which, though of inferior value to the older deposits on the western side, is likely to become of importance, having at the present time one mine in full work. At the Parapara Creek, about five miles south of Collingwood, extensive deposits of hæmatite-ore are found. These are now in the hands of the Onehunga Iron Company, which possesses also works in Auckland for reducing ironsand. The company are making preparations for reducing the ore, the surrounding conditions being favourable, as both limestone and coal are abundant in the locality. Another coal-basin exists at West Wanganui and Pakawau.

In the Aorere Valley, of which Collingwood is the port, alluvial mining is still found to be payable, and the country contains some valuable timber in the upper part not yet utilised. Nineteen miles south, in Blind Bay, lies the small port of Waitapu, from which a considerable amount of sawn timber is exported, drawn from the Takaka Valley, and brought down by a steam tramway from the upper mills. From the head of this valley the main road is carried over a pass in the Pikikirunga Range, 3,476ft. high, through the villages of East and West Takaka, Riwaka, Motueka, and Moutere to the township of Richmond, eight miles from Nelson. Inland are also the villages of Ngatimoti, Dovedale, Tadmor, and Sherry, each the centre of a number of small farms, and all connected by fairly-good dray-roads.

An inland road, partly bridle-track and partly dray-road, has been made from Nelson to Canterbury, by way of Tophouse, Wairau Gorge, Tarndale, Clarence Valley, Jollie's Pass, and the Waiau Plains. On the Hanmer, a tributary of the

Waiau-ua, is a Government Sanatorium, at an elevation of 1,000ft. above sea-level, and situate among hills 6,000ft. high. Here there are hot mineral springs, much visited by persons suffering from rheumatism and skin-diseases. It is reached by coach and rail from Christchurch in ten hours. The main-trunk railway-line is constructed to Culverden, twelve miles north of the Hurunui, the southern boundary of the district. From Culverden a good coach-road passes through Rotherham and Waiau-ua to the East Coast at Kaikoura, connecting with Blenheim and Nelson.

About 4,000,000 acres of land in the southern part of the district has been set apart as an area of selection for the Midland Railway Company, according to the terms of their contract, but as yet a very small area has been dealt with.

Crown Lands.

About 3,000,000 acres of Crown lands still remain unoccupied in the northern part of this district; they consist principally of high bush-country, with occasional patches of good valley-lands, the greater part being classed as second-class land. Of these, the area open for selection to date comprises 37,348 acres of surveyed lands, and 252,697 acres unsurveyed lands, of which the location, nature of soil, &c., have been briefly described in the foregoing pages.

THE WESTLAND LAND DISTRICT.

By David Barron, Chief Surveyor.

The Westland Land District is situated about midway on the western watershed of the Middle Island, being bounded on the north by the Grey and Arnold Rivers, and on the south by a line from Mount Aspiring to the mouth of the Awarua River. The length is 200 miles, with an average width of about twenty-four miles. The total area equals 4,759 square miles, the bulk of which is occupied by the main range and its off-shoots, leaving a narrow strip of low-lying terraces, plateaus, and river-flats between the foot-hills and the sea-coast.

Physical Features.—Mountains.

The eastern boundary, which extends from Harper's Pass (Hurunui Saddle) to Mount Aspiring, a distance of 230 miles, is a line of snow-clad summits, ranging in height from 5,000ft. upwards Mount Cook dominates the whole from an altitude of 12,349ft. In 1881 the trig. survey finally determined that this famous peak could no longer be claimed as a portion of Westland, but was altogether east of the main divide. At the same time, it still stands out as the finest work of nature visible in Westland, and, on account of its nearness to the sea, forms the most conspicuous landmark along the west coast of the Island.

The great range presents a splendid panorama of ice-clad peaks and gleaming snow-fields towering over the forest-clothed tops of the lower hills, the heads of the valleys being filled with glaciers, whose terminal faces are glittering masses of almost unsullied ice. The Fox and Franz Josef come down to within sixteen miles of the coast, and 700ft. above the sea level, and can be approached on horseback without difficulty.

Rivers.

With few and minor exceptions, these are all alpine in character, confined to narrow channels in the ranges; but, on emerging from the hills, spreading often for a mile, carrying enormous quantities of water and shingle, and, when in flood, doing much damage to the sea-board country. Except in wet weather, the smaller rivers are easily crossed at any time of the year, but from the beginning of September to the end of January the larger rivers are rarely fordable, owing to the melting of the inland snows, and the traveller has to use the ferries, which are established at all the main crossings.

Forests.

With the exception of the *pakihis*, or natural clearings, and open river-beds, the whole of Westland is covered with dense forest from the sea coast to the winter snow-line on the mountains. Rata and kamahi are the principal varieties used for firewood, and are practically inexhaustible. Furniture timbers, such as kawhaka (cedar), broad-leaf mottled silver-pine, and mountain totara, are to be found from the 3,000ft. level on the ranges downward, and must eventually form a source of great wealth. The lower country contains large areas of valuable saw-milling timbers, chiefly red- and white-pine. Black- and white-birch, silver- and black-pine also occur in isolated patches of considerable extent. A limited quantity of totara is to be obtained in three or four districts. The total area of forest amounts to 2,394,951 acres, of which 903,785 acres are at an altitude of over 2,000ft. above sea-level, and mostly covered with stunted timber and alpine scrub. It is estimated that 940,500 acres only can fairly be classed as milling timber-land.

Lakes.

These are fairly numerous, accessible for the most part by roads, and scattered throughout the district. They vary much in character, comprising the tidal waters of Saltwater and Okarito Lagoons, the bush-girdled Mahinapua, Ianthe, Wahapo, Moeraki, and Ellery; the shallow, reedy Tauwherikiti and Rotokino; the expanse of Lake Brunner, and the lovely mountain-girt Kanieri. Most of them teem with water-fowl of every description. While no two are really alike, each having its special scenic beauty, yet nearly all reflect the tints and snows of the great mountains.

Soils.

On the mountain uplands, from the grass-line down to the heavy timber, the soil is dry and strong; cocksfoot grows well on it, and no doubt in the future much of this country will be cleared, thus affording safe wintering ground for sheep. From the 2,000ft. level downwards the soil becomes thinner and stonier, many of the finer particles finding their way to the bottom of the foot-hills, and forming an area of really good land, in some places narrow, at others speading out into gently sloping fans of considerable size, covered with light timber, scrub, or fern. The fertility of these lands is mainly due to the loose nature of the subsoils, which allows heavy rains to drain away, and thus prevents the sourness so characteristic of the heavily-timbered terraces of the coastal country. Near the coast the soil is very thin, and lies for the most part on an almost impervious clay of poor quality, which, in its turn, is often found to rest on impacted non-porous gravels. Hence, during the winter months the ground is very wet and sloppy.

After sawmillers have cleared away the timber, doubtless much of this country will become fair grazing land, when thoroughly drained and dressed with lime, of which immense quantities lie to hand in several neighbourhoods. Dotted over the terrace country are many *pakihis*, or natural clearings, of different areas and various formations. Several are fairly dry, others are very sour and wet, others again being open swamps. The soil is often more or less peaty, thoroughly water-soaked, and resting on a thin skin of tough, barren clay or cemented gravel, below which is loose drift. As settlement progresses attempts will undoubtedly be made to reclaim these waste spots by systematic drainage, and most of the swamps will also be converted into good farms. Generally there is excellent fall for drains, the substrata are porous gravels, and even now the boggy places may be crossed on foot.

On the banks of the rivers there is a fringe of light, sandy loam, very excellent for pasture and root crops, easily cleared, and very level. Apart from occasional damage by floods, this land has amply paid for reclamation.

Climate.

The climate may be described as fairly mild and of equable temperature; this is due to its humidity, the average rainfall being 119in. per annum. The prevailing winds are from the north and south-west, and a notable feature is the absence of strong or gusty wind during fine weather. Snow rarely falls below 2,500ft., and the frosts are never prolonged or severe.

Pastoral Lands.

The pastoral lands comprise 2,002,577 acres, of which 1,898,776 acres are covered with forest, and 103,801 acres are, for the most part, tussock country on the ranges above the timber line. Large herds of cattle are bred and mustered in these bush lands, where they feed on the under-scrub; thence they are either driven by road or brought by steamer to the Hokitika and Greymouth saleyards.

Of late much attention has been paid to sheep-breeding, and considerable flocks are now kept in paddocks on the open river-flats, and also on the mountain pastures. As yet, however, the efforts to feed off the higher grass lands have not been very successful, owing to farmers neglecting to remove their sheep before the early winter snow falls. Until the settlers clear and grass the upper bush down to 2,000ft. level, the flocks must be driven down in the autumn and wintered in the low country.

Although for several years the rabbits have crossed from the eastern slope into Westland, they have not made their way down to the sea-board, but are confined to the head-waters of a few of the southern rivers. Even when let out in numbers many years ago, as in the Kokatahi and Mahinapua districts, they have barely held their own, and have certainly not spread to other neighbourhoods.

Agricultural Lands.

The agricultural lands (354,155 acres) are made up of 331,130 acres of bush and 23,025 acres of clear country, the latter comprising the *pakihis* and swamps noted above, and also strips of tussock lands in the river valleys. Oats are the only grain grown in Westland. They are made into hay and chaff, and used for the most part by the farmers for their own stock, very little finding its way into the markets, which are still supplied, as heretofore, by Nelson and Canterbury. The district is well fitted for, and produces freely both turnips and potatoes; still considerable quantities of the latter are imported into Hokitika and Greymouth. Of late, especial attention has been directed to the butter industry, and it is proposed to establish two factories in the Kokatahi settlement. Fruit-growing has also made headway, and very few apples are now imported, the local growers being able to supply the ordinary demand.

Means of Communication.

The district is fairly well provided with means of communication. The railway now extends from Hokitika, *viâ* Greymouth, to Reefton, branching at Stillwater to Jackson in the Upper Teremakau. Coaches twice a week connect with Canterbury, *viâ* Arthur's Pass, and ply daily between Hokitika, Ross, Greymouth, Kumara, and the neighbouring towns; while once a week a mail is conveyed on horseback southward to Gillespie's Track, and once a fortnight to Jackson's Bay. A subsidised steamer runs between Hokitika and the numerous southern ports as far as Jackson's Bay, plying every two months, thus enabling settlers to obtain supplies and to ship their cattle and produce to market. The Government steamer also calls at Jackson's, Big, and Bruce Bays on her quarterly trips from Dunedin. Steamers also trade regularly between Hokitika, Greymouth, and other parts of the colony. The Main South Road, which for many miles skirts the foot of the Main Range, has been so greatly improved of late years, that the traveller can now ride comfortably and safely *viâ* Haast's Pass right through into Otago. Numerous bridle-tracks branch from the trunk line to various points, while the large open river-beds likewise give access to the country on either hand. From Jackson's Bay horse-tracks have been made *viâ* Cascade River and Barn Bay to open up the southernmost country. Numerous cones, ranging in height from 1,850ft. to over 7,000ft., leading across the Central Range, have been explored and mapped, but of these the only sub-alpine saddle is Haast's Pass, all the others being liable to blocks by winter snows. A coach road over Arthur's Pass in the north and a horse-track through Haast's Pass in the south have been made; but between these points, a distance of 163 miles, no transinsular road exists. Still in the future, as the population increases, doubtless tourist- and stock-tracks will be constructed along many of the intervening routes.

Harbours and Ports.

The harbours and ports of Westland are the following:—

Greymouth, twenty-four miles north-east of Hokitika: Extensive harbour-works have been carried out. A breakwater or sea-wall extends some 3,360ft. sea-ward from the mouth of the river on the south side, and on the north side 1,100ft., with internal half-tide training-walls, the result being an average depth of water on the bar of 20·7ft. at high water and of from 8ft. to 16ft. at low water. Vessels of 1,000 tons can now come alongside the wharf. There is berthage accommodation of 1,824ft., with a minimum depth of 12ft. to 16ft. at low water. The principal exports are gold, coal, coke, and timber. The number of vessels that entered the port during the year 1894 was: 588 steamers, tonnage 140,555; 54 sailing-vessels, tonnage 4,806: being a total tonnage of 145,361 for the year. The train runs down the wharf, and the coal-trucks, specially made for the purpose, are lifted and emptied into the vessel's hold by means of powerful cranes, of which there are six, with capacities of from 1½ tons to 12 tons, so that every encouragement is given to quick despatch.

Hokitika: Two training-walls have been constructed, the one on the north side being about 2,000ft. long, while that on the south is 670ft. The bar is one of shifting sand, and the depth at high water varies from 9ft. to 15ft., while inside the depth is from 6ft. to 22ft. for three-quarters of a mile up from the entrance. For ten months out of the twelve the port is usually safe for vessels drawing 8ft. to 10ft. of water. The berthage space amounts to 1,000ft., with from 18ft. to 22ft. of water. The principal exports are gold and timber. The number of vessels that entered the port during 1894 was 113: tonnage, 7,919.

Okarito, fifty-five miles south-west of Hokitika: A bar harbour, sometimes completely blocked by a high sand-bank thrown up by heavy seas. When open, the entrance is good, with a maximum depth of 10ft. There is a small jetty about half a mile from the entrance.

Bruce Bay, ninety-five miles south-west of Hokitika: An open roadstead, well sheltered from the south and south-westerly winds by Heretaniwha Point, which juts out fully a mile to the northward. Good anchorage in 18ft. of water opposite the Green Rock, which stands up out of the water. Good boat-landing with above winds on a smooth sandy beach.

Paringa River, 104 miles south-west of Hokitika: Open roadstead. Vessels coming in and out should give Hauata Reef (off the north head) a wide berth. There is also a sunken reef, awash at low water, in the middle of the bay, and a dangerous sunken rock just off the south head, two or three chains away, facing a small sandy bay, and right abreast of the trig. station. Vessels lie inside and a little to the northward of this rock, about a quarter of a mile from shore, and are quite safe with southerly winds.

Haast River, 118 miles south-west of Hokitika: A constantly-shifting bar at entrance, which is nearly opposite and a little to the southward of the Alhambra Rock. This rock stands well out of the water, and vessels entering can go on either side with safety. Average depth of water on bar from 6ft. to 8ft.

Okuru and Turnbull Rivers, 138 miles south-west of Hokitika: These rivers join just inside the entrance. Good, straight channel; average depth, 8ft. to 10ft. The port is well sheltered by Open Bay Islands, which lie about three miles away, just opposite the entrance, bearing a trifle west of north. A dangerous reef lies about two miles and a half from the south-west point of the smaller island, and immediately to the north-west of a line drawn from the last-named point to the extreme end of Jackson's Head.

Jackson's Bay, 153 miles south-west of Hokitika: Good shelter and anchorage, open only to north-east, with 12ft. of water within a few chains of shore. Jackson's Head runs out about one mile and a half in a north-easterly direction from the southern end of the bay. This is the only ocean harbour on the coast of Westland, and could be converted into a first-class port at comparatively small cost. No doubt Jackson's Bay will eventually form a great coal port, as indications of coal are found from the bay to Tauperikaka, a distance of thirty miles. Moreover, the recent discovery of a practicable pass through the Main Range, *viâ* the Waiatoto and Axius *Rivers, will* make it in the near future the natural outlet for the Lake Wanaka country.

Big, or Awarua Bay, 200 miles south-west of Hokitika: At the extreme south-west corner of Westland. An open roadstead, sheltered from east and south-west winds; 24ft. of water on south side anchorage and 30ft. on north side, just opposite Crayfish Rock, in a spot sheltered from northerly winds.

Steamers have also, in past years, entered the Teremakau, Waitaha, Wataroa, Wanganui, Waiatoto, and Arawata Rivers, all of which have bar-entrances. The Cascade River is likewise navigable, though no steamer has as yet been in; and goods and passengers are also landed at the roadsteads of Saltwater, Gillespie's Beach, and Abbey Rocks.

Towns.

Brunnerton: A borough of about 2,250 inhabitants; is a coal-mining centre. Coke and fire-clay bricks are also manufactured. Railway communication with Greymouth Port, Reefton, and Upper Teremakau.

Greymouth Borough: Population, 3,800; the shipping port for Grey Valley. Railway communication with Reefton, Upper Teremakau, and Hokitika. Railway workshops, foundry, and quarries. The principal business portion of town is built on Native land, rents being paid to Public Trustee, who distributes them to Natives entitled thereto.

Kumara: Borough of 1,200 inhabitants. This is a brisk mining town, and is probably the largest hydraulic-sluicing mining centre in New Zealand. It has two suburbs—Dillmanstown and Larrikin's—with populations of 480 and 240 respectively.

Hokitika: Borough of 2,200 inhabitants. This is a pretty town, the political capital of Westland, the port for shipping and centre of supply for a number of little townships, and for the whole district south of Teremakau.

Ross: Borough, population, 850. A clean and neat little town, the centre of a considerable mining district, with a few good sluicing claims on a large scale.

In addition to the above, there are several small mining centres, such as Stafford, Kanieri, Woodstock, Rimu, Blue Spur, Okarito, and Gillespie's.

Mining and Minerals.

The District of Westland contains the greatest area of alluvial auriferous ground on the West Coast. In the Mines Report of 1895 the number of miners employed is given as 2,448, and the amount of gold produced as 51,317oz., valued at £205,278.

All the Westland rivers carry more or less gold, but the two great golden rivers are the Arahura and Waiho, the bars and ripples in which appear to be replenished with fresh deposits of gold after each flood. Standing on the summit of Mount Turiwhate, the ancient beds of the Arahura can be easily traced northward to the Kumara and southward to the Rimu diggings. Similarly the Waiho has, in olden times, flowed both northward down the course of the Okarito River and southward to the Omoeroa River, the lateral terraces in both directions being well defined and gold-bearing.

There are three main gold-bearing deposits in Westland: the first, which may be called riverine leads, run generally westward. These are ancient river-beds, often lying at considerable elevations, of which the bulk has been washed away, leaving detached portions, as at Kumara and Rimu; the second are beach leads, both those along the present coast-line, and others running parallel thereto at distances varying from one-quarter to four miles inland, and at levels from a few feet below to a couple of hundred feet above sea-level; the third are extensive masses of gravel, &c., occurring in large isolated patches, as at Big Dam Hill, Humphrey's Gully, and Bald Hill, north of the Haast. These drifts have all one notable peculiarity, viz., that they invariably coat the seaward faces of the hills, and neither gold nor drift is to be found on the inland slopes. Gold-bearing fans from Mount Greenland have been found at different levels on Ross Flat, having probably been deposited in deep water by sucessive land-slides.

Hydraulic sluicing on a large scale is successfully carried on in various portions of the northern district, and will doubtless be extended to many other localities. The tapping of the Arahura River, by the Humphrey's Gully Sluicing Company, will, when completed, enable the miners at Blue Spur to obtain an unfailing supply of water, and command a large area of auriferous country, at present unworkable from want of water at a sufficient altitude. Numerous and costly experiments have been made with dredges of different types in the endeavour to work economically the gold-bearing sands which lie along the sea-beaches for a distance of over 140 miles; but none have proved a success as yet. A considerable number of miners (black-sanders) work on some of these beaches, and seem to make a fair living, many of them having been so employed in one neighbourhood for over twenty years.

Gold-bearing quartz has been found throughout the district, the most promising finds being at Taipo Range, Browning's Pass, and Cedar Creek; but as yet this quartz has nowhere been properly worked. Silver-ores have been found, notably at Mount Rangitoto; but the main lode has not yet been discovered, although a very thorough search has been made for it. Copper has also been found in many places, more especially at Browning's Pass and on the western slopes of the Matakitaki Ranges, where good coal and limestone are also to hand.

THE CANTERBURY LAND DISTRICT.

By J. W. A. Marchant, Chief Surveyor.

Boundaries—Physical Features.

The Land District of Canterbury comprises the central portion of the Middle Island, and is bounded towards the north by the Hurunui River, with an extension northward to the Waiau-ua River for about twelve miles from the sea; towards the westward by the summit of the Southern Alps to Mount Aspiring; thence towards the south by a right line and by the Ohau and Waitaki Rivers to the sea; and towards the east by the South Pacific Ocean. It lies between south latitudes 42° 45′ and 44° 55′, and east longitudes 168° 50′ and 173° 20′. The length of the district north-east and south-west is about 190 miles; the breadth W.N.W. and E.S.E., from the summit of the Alps to the sea, averages seventy miles. The sea-board has a length of about 240 miles, consisting generally of low-lying beaches, broken by the projection eastward of Banks Peninsula, which contains the only large natural harbours. That portion of the district which fronts the ocean between the Ashley and Opihi Rivers is flat land, about 2,500,000 acres in extent; north and south of those limits the plain is interspersed with undulating and hilly country.

This great plain stretches westwards, rising and merging into downs and hills, which again extend westward and merge into the Southern Alps and the offshoots therefrom. Banks Peninsula, which has an area of about 250,000 acres, is wholly composed of ridges and hills, deeply intersected by basins and gullies, the result of volcanic action.

The Southern Alps, which form the backbone of the island, are a continuous chain of mountains, with a succession of magnificent peaks, attaining their culminating point in Mount Cook, or Aorangi, 12,349ft. above sea-level; there are, besides, numerous peaks ranging in altitude between 7,000ft. and 10,000ft. Offshoots, extending to great distances eastward and south-eastward from the main range, attain elevations of 6,000ft. to 9,000ft. On these mountain-ranges are numerous and extensive glaciers, from which emanates the river-system of the district, comprising the Hurunui, about 85 miles in length; Waimakariri, 90 miles; Rakaia, 85 miles; Ashburton, 64 miles; Rangitata, 74 miles: the Waitaki and its main feeders, 140 miles. These rivers rush down from the mountain-gorges, through the intervening ranges and hills, and traverse the plains to the sea. The channels on the plains are shallow, and extend in some instances over a mile in width.

These rivers serve as outlets for a portion of the Lake system of the Middle Island, Lake Sumner being connected with the Hurunui, Lakes Coleridge and Heron with the Rakaia, and the Mackenzie-country lakes—Tekapo, Pukaki, and Ohau—with the Waitaki. Another important lake is that known as Lake Ellesmere

—west of Banks Peninsula ; it is separated from the ocean by a narrow shingle-spit only 5 chains across at one point, through which, at certain seasons, the flood waters force a channel to the sea.

Climate.

The climate of Canterbury is well suited to Europeans. It resembles that of Great Britain, but on the plains is far more equable, the mean daily range of temperature being 17·10° Fahr. Observations taken at Lincoln (fourteen miles from Christchurch) for a period of ten years, ending December, 1892, give the following results: Barometer, reduced to 32° Fahr. and sea-level, 30·06 ; mean maximum daily temperature, 61·47 ; mean minimum daily temperature, 43·27 ; mean average temperature, 52·37. The extremes of temperature were 92° and 22° Fahr. The rainfall for the same period averaged 26·809in. per annum, the extremes being 35·287in. in 1886 and 14·836in. in 1890. The average annual number of days on which rain fell was 123, the extremes being 149 in 1887 and 98 in 1891. Snowfalls are very light on the plains, but in the high uplands the climate is much colder and more severe. The changes of weather and temperature are sudden, calms and gales, rain and sunshine, heat and cold alternating. The prevailing winds are north-east, south-west, and north-west—the last a hot wind. The climate, as a whole, is splendidly healthy, bracing, and most enjoyable.

Foundation and Settlement.

The district was occupied, in the first instance, by settlers sent out by the Canterbury Association, which was formed in 1848, and incorporated by Royal Charter in 1849, under the auspices of prominent men in England, including the Archbishop of Canterbury and Lord Lyttelton. The step was not taken until after due inquiry as to the most suitable part in which to establish a settlement. Captain (now Sir George) Grey, at that time Governor, recommended the Wairarapa, but it was finally decided to take over from the New Zealand Company a tract of the Canterbury Plains, in the neighbourhood of Port Cooper. Captain Thomas, the agent of the association, who had advised the selection, superintended the surveys and the preparations for receiving intending settlers. The original intention of the founders was that the settlement should be independent and complete in itself, and should embrace only such persons as were members of the Church of England and were approved of by the association. This was frustrated by the influx of numbers of persons of all classes and beliefs. The first body of emigrants arrived at Port Cooper on the 16th December, 1850, and the settlement remained under the control of the association, as directed by a committee of management in England, and under the active personal supervision of Mr. John Robert Godley, until 1853, when the whole of Canterbury became a province of New Zealand by the provisions of "The Constitution Act, 1852."

Thenceforward the control of the settlement was vested in the Superintendent and the Provincial Council. The first Superintendent was Mr. James Edward FitzGerald, who held office till 1857 ; he was followed in succession by Mr. William Sefton Moorhouse, 1857–1863 ; Mr. Samuel Bealey, 1863–1866 ; Mr. Moorhouse again till 1868 ; and Mr. William Rolleston till the abolition of the provinces in 1876, when the district came directly under the control of the General Government.

Area, Nature, and Disposition of Lands.

The area of the Canterbury Land District is 8,776,655 acres, of which the estimated area of forest-land is 492,130 acres. Forest-lands are found in Banks Peninsula and in the Mount Peel and Waimate districts, where the timber consists chiefly of rimu, totara and matai ; at the sources of the Ashley, Waimakariri, Rakaia, Hopkins, and Hunter Rivers, at Lake Wanaka and near Springfield and Methven, the timber in these localities being mostly native beech ; and near Oxford, where the beech is interspersed with rimu, totara, matai, &c.

The lands of Canterbury are classed as follows: First class, 1,840,681 acres ; second class, 4,707,173 acres ; third class (barren lands and lands of small value), 2,228,801 acres : total, 8,776,655 acres.

The disposition of lands was in 1894 as under:—

	No. of Holders.	Area in Acres.
1. Crown lands disposed of for cash, and under Midland Railway Act	...	3,295,106
2. Lands held on deferred payments	108	22,717
3. Lands held on perpetual lease	327	78,146
4. Lands held as leaseholds in perpetuity	217	51,396
5. Lands held in occupation with right of purchase	16	3,099
6. Lands held as village-homestead special settlements	296	8,129
7. Lands held as small grazing-runs	40	93,407
8. Lands held as grazing-farms	18	26,023
9. Pastoral licenses, including small area of barren country	128	2,896,585
10. Special-settlement associations	32	3,023
11. Land granted under Midland Railway Act (area also included in 1 and 13) 271,983 acres		
12. Reserves held under license	190	80,199
13. Area of land reserved and granted under various Acts (exclusive of 12)	...	664,481
14. Land purchased and disposed of under Land for Settlements Act (included in 1) 1,251 acres	43	...
15. Crown lands open for selection	...	18,269
16. Crown lands being prepared for selection	...	44,181
17. Barren lands	...	1,491,894
Total	...	8,776,655

In explanation, it may be noted that No. 1 comprises the freehold lands conveyed, and that tenants of Nos. 2, 3, and 5 have the right of acquiring the freehold, which is not the case with tenants of Nos. 4, 6, 7, 8, 9, 10, 12, and 13. Crown lands proper are—15, open for selection; 16, being prepared for selection.

Internal Communication.

In no part of New Zealand are the means of communication better than in Canterbury. The natural facilities of the country have been abundantly supplemented by railways and roads. Lyttelton, the chief port, is connected by rail with Christchurch, the heart and centre of the whole district. From Christchurch the main line extends northwards to Culverden, striking the Hurunui River at a distance of 57 miles; southward the main trunk line runs to Waitaki, 138¾ miles. These lines tap and serve the whole coastal district, and the lands adjoining on the western side. As feeders to these trunk lines, eight branch lines have been constructed westward, and two lines south-eastward; the former, in most instances, extending to the foot of the hills.

Combined with the railway system is a complete network of main, district, and subsidiary roads, extending into all parts of Canterbury. The total length of railways is 455 miles, and the roads probably exceed 10,000 miles in the aggregate. The completion of this splendid system is due, partly to the foresight of the original settlers, partly to the exertions of the Provincial Government, and partly to the railway and public-works policy of Sir Julius Vogel.

Geological Formation.

According to Sir James Hector, the main western ranges are composed of Upper Palæozoic rocks, having at their base extensive plains of Tertiary fluviatile formation, with occasional protruding ridges of Upper Mesozoic, forming low mountain-ranges subordinate to the main axis. Banks Peninsula consists of basic volcanic rocks.

Soils.

The Southern Alps and mountains adjoining are, owing to their great altitude, subject to disintegration, and form for the most part rocky barren wastes.

The lower ranges and hills, the high tablelands, and the light stony portions of the plain form the pastoral areas.

In the northern and southern districts and in the great central plain are the agricultural areas. This latter class of land comprises rich alluvial tracts about Cheviot, Rangiora, Kaiapoi, Lincoln, Ellesmere, Longbeach, Temuka, and Waimate, and the splendid plain- and down-lands which extend from Cheviot to the Waitaki.

Banks Peninsula, where the soil is of a rich volcanic nature, though exceedingly hilly, has alluvial areas in the valleys and about the bays.

Pasturage and Crops.

Below a certain level, the mountainous and hilly regions, and the high upland country in the western and northern part, are covered by native grasses, with an admixture of English forage-plants where the character of the soil and other circumstances are favourable.

The pasturage, which is very suitable for sheep-farming, is taken full advantage of by the pastoral tenants of the Crown, and is used to some extent by freeholders. The light stony portions of the plain also contain native grass lands, well adapted to merino sheep.

The lower hills, downs, and better kinds of plain-country have been widely cultivated, and have proved well fitted for the production both of cereals and of grasses.

The chief crops grown are wheat, oats, barley, turnips, rape, clover- and grass-seed; while amongst other crops produced are maize, rye, peas, and beans.

Of the cereals, wheat is the most largely grown, and was for many years a large item of export. In 1895 the area under crop was 107,352 acres; the yield 2,540,936 bushels, or 23·67 bushels per acre, equal to about two-thirds of the whole yield for the colony.

Oats also are very successfully grown, the figures for the same period being 123,542 acres, yielding 3,327,998 bushels; average 26·94 bushels per acre, or nearly one-third of total yield for the colony.

Barley of superior quality is also produced, the figures being 14,728 acres, 423,906 bushels: average per acre, 28·78 bushels, or over two-fifths of total yield. grass-seeds are abundantly grown, cocksfoot mainly on the splendid Banks Peninsula country, and rye throughout the land district. The yield in 1895 was—cocksfoot, 228,798 bushels of 12lb.; and ryegrass, 159,243 bushels of 20lb.: the proportions to the total yield for the colony being respectively about two-thirds and three-tenths.

Hay was grown on 17,565 acres.

Root-crops.

Potatoes, which yield crops of excellent quality, were grown in 1895 on 7,067 acres, the yield being 44,155 tons, or 6·25 tons per acre—nearly one-third of the yield for the colony. Turnips and rape were grown on 128,225 acres, being about one-third of the total acreage for the colony. The combined area of other crops grown, including rye, peas, beans, mangolds, beet, carrots, and onions, was 18,079 acres. The area of oats for green fodder and hay was 47,443 acres. The area ploughed and laid down in English grasses was 1,384,950 acres. Surface-sown lands comprised 329,082 acres. The total area under crop was 446,436 acres, and the area broken up but not in crop, 30,717 acres.

Stock.

The pastoral and agricultural lands provide grazing and fodder for a large number of sheep, cattle, horses, and other stock. Of late years the value of the plains has been much enhanced and the carrying-capacity thereof greatly increased by the water-race system, which supplies water throughout the length and breadth of the dry areas, and enables the country to be occupied in smaller holdings than would otherwise be possible.

The following table shows the extent, cost, and other particulars regarding the water-race system in the several counties in 1894:—

County.	Area watered.	Miles of Races.	Total Cost.	Cost per Acre watered.	Amount of Water distributed every Twenty-four Hours.	Annual Charge for Use of Water.
	Acres.		£	s. d.	Gal.	
Selwyn ...	326,388	1,084	67,679	4 1¾	70,940,960	8s. 4d. to £1 3s. per 100 acres.
Ashburton	586,000	1,050	27,000	0 11	75,000,000	About £3 per mile of race.
Geraldine	71,212	260	9,010	2 6⅓	29,520,000	About 7d. per acre, including a rate for payment of principal and interest on loans, and a rate for maintenance.
Waimate	28,000	105	4,100	2 11	7,200,000	Races are maintained by a small rate on the annual value of lands watered.

The number of stock in April, 1891, was as follows: Horses, including 6,754 brood mares, 47,567; mules and asses, 97; cattle, including calves, and including 34,922 breeding-cows, of which 31,250 were milch cows, 81,772; sheep, including lambs, 4,307,732, of which 1,693,339 were breeding ewes; goats, 397; pigs, 75,984; poultry, 404,355. In 1894 the number of sheep in the provincial district was 4,909,752, made up as follows: Merinos — wethers, 541,718; ewes, 1,018,433. Other breeds: Wethers, 437,754; ewes, 1,492,798; rams, 45,830; lambs, 1,373,219.

The district has a well-deserved reputation for the classes and splendid quality of its sheep. On the mountains and higher lands the merino still predominates; but on the richer low-lying ranges, hills, and plains the prevailing types are crosses between the merino and Leicester, Lincoln, Romney Marsh, and other breeds. In proof of the superior character of the flocks, pasturage, and climatic conditions in the Middle Island, the following percentages of lambing returns are quoted—these are "fair average returns, but much higher might have been exhibited": Mountain native pasture—pure merino, 75·36; pure merino and Border Leicester, 88·94: English-grass pasture—crossbred and Border Leicester, 80·8; half-bred Border Leicester, 82·79; Border Leicester, 90·77; Lincoln, 88·08; Romney Marsh, 111·46; English Leicester, 93·34; Shropshire, 97·41; Southdowns, 96·87. It must be borne in mind that the flocks and herds are supported by the natural and artificial pastures without housing.

Owing to the development of the frozen-meat trade a great impetus has been given to sheep-breeding. The bulk of the primest meat exported from the colony is supplied by this district, and commands the highest price in the London markets. In the year 1890 the number of carcases frozen was 640,723, of the value of £369,574, being over one-third of the total output of the colony in this line. 197,037lb. of beef, valued at £2,052, and 554,593lb. of preserved meat, valued at £12,622, were also produced. Other productions during 1890 were as under: Tallow, 1,521 tons, value £33,254; bonedust, 668 tons, value £3,674; neatsfoot-and trotter-oil, 3,162 gallons, value £530; bones, hoofs, horns, &c., 479 tons, value £1,900.

The total quantity of frozen meat exported from Canterbury during the year ended 31st March, 1895 was 452,387 cwt., valued at £522,452. At Belfast, Islington, and Timaru freezing-works are established, each containing a complete plant for carrying on the industry, as well as departments for curing, preserving, boiling-down, tallow-rendering, fellmongering, and the manufacture of manures. The Belfast company have at their command steam-power equal to 500 horse-power, and employ about 220 men. They have storage for 26,000 sheep, and can put through 3,000 a day.

The Islington and Timaru works, which are owned by the Christchurch Meat Commany, employ from 250 to 300 men. The former can put through 2,000 sheep and 1,000 pigs per diem, and have storage for 36,000 carcases. The latter can deal with 1,000 sheep in a day.

Wool.

During the year ended 31st March, 1895, there were shipped at Lyttelton and Timaru 33,901,666lb. wool, valued at £1,120,677; and to this must be added the amount (about 1,000,000lb), bought for manufacture by the woollen-mills in the district. The staple of the New Zealand wool, especially the long-wool and cross-bred, is remarkable for its freedom from breaks and other imperfections. The average clips are approximately as follows: Merino, 4lb. to 7lb.; quarter-breds, 6½lb.; half-breds, 7½lb.; three-quarters, 8½lb.; Leicesters, 10½lb.; Lincoln, 11lb. From special flocks clips up to 25lb. and 30lb. are obtained.

Butter and Cheese.

Banks Peninsula and the rich tracts of country previously mentioned are excellently suited for dairy farming. The pasturage and climatic conditions are favourable, and a great increase in the production of butter and cheese may be looked for, more especially as housing and hand-feeding are in some districts unnecessary. A central co-operative dairy factory has been established at Addington, served by twelve creameries, situate at Marshlands, Oxford, Halswell, Springston, Doyleston, Little River, Ladbrooks, Lakeside, Kaiapoi, Green Park, Brookside and Ashburton, each capable of dealing with the milk of 1,000 cows. There are also very complete dairy factories at Taitapu, Sefton, Temuka, Southbrook, Belfast, Tinwald, and Le Bon's Bay, as well as a cheese factory at Flemington.

In 1890 the production of butter amounted to 2,268,758lb., and of cheese to 1,313,027lb.

Timber.

The sawmilling industry finds its development chiefly in the Oxford, Little River, Mount Somers, and Waimate districts. The number of mills in Canterbury in 1890 was twenty, employing 250 hands, the horse-power being 281. The output was 3,978,146ft., valued at £16,049. The timber comprises birch, totara, red- and white-pine. The first-named is used chiefly for sleepers and fencing, the totara and pine for building purposes. Including the work done by the planing- and moulding-mills the value of all the manufactures under this head was £41,447.

Phormium Tenax.

In 1890, the drying and preparation of this plant gave employment to 16 mills and 313 hands; the aggregate horse-power of the engines was 222; 15,409 tons of raw material turned out 2,125 tons of fibre, valued at £36,960.

Fruit.

The district is eminently adapted for the growth of a large variety of fruits, especially all that flourish in Great Britain. Attention has recently been directed to landing supplies of fruit in London; the attempts so far have proved satisfactory, and point to the possibility of a large trade being established.

Coal.

Brown coal is found at the Malvern Hills, Homebush, Whitecliffs, Springfield, Mount Somers, Albury, and various other places. Lignite is also commonly distributed. For the year 1894, the output from 12 collieries, employing 38 hands, was 10,756 tons, bringing the total amount raised from 16 collieries up to the 31st December, 1894, to 314,993 tons. The seams worked vary from 16ft. to 2ft. 3in., the average width being 8ft. At Acheron, near Lake Coleridge, a true anthracite is found, the other pits in the district being of brown coal or lignite.

Building-stones.

The building-stones of Canterbury comprise some excellent varieties. The Halswell quarries produce an exceedingly hard and close-grained stone of a dull leaden-grey colour. Granular trachytes are obtained from Governor's Bay, Lyttelton; porphyrites at Malvern Hills; good limestone at Malvern Hills, Waikari, Mount Somers, and various other places; bluestone rock is found at Timaru suitable for millstones. There is abundance of limestone in North Canterbury, Mount Somers, Castle Hill, and various other parts, which is well adapted for making lime.

Fisheries.

Deep-sea fishing is carried on from Lyttelton and Akaroa, the kinds of fish chiefly caught being groper (hapuku), ling, conger, moki, butterfish, barracouta, soles, whiting, red-cod, herrings, guffy, and garfish. From Lake Ellesmere and the river-estuaries excellent flounders are obtained. In 1893 there were employed on the lake and along the coast about 87 boats, manned by 182 men.

Trout thrive amazingly in the rivers and fresh-water lakes, affording excellent sport.

Manufactories.

The total number of manufactories in Canterbury in 1890 was 386, employing 4,197 males and 465 females, their annual wages respectively being £328,812 and £16,965; the number of engines 391, of 4,677 horse-power.

The total value of manufactures for 1890 was £2,061,921, and the value of land, machinery, and buildings was £1,099,444. Included in the above were 16 printing, 12 agricultural-implement, 32 coach-building and -painting, 25 fellmongering, tanning, currying, and wool-scouring establishments, 4 ship- and boat-building works, 7 sail- and oilskin-factories, 2 woollen-mills, 2 clothing, 10 boot-and-shoe factories, 3 rope-and-twine works, 16 flax-mills, 6 boiling-down, meat-preserving, and freezing works, 4 cheese- and butter-factories, 40 grain-mills, 1 fruit- and jam-making works, 19 breweries, 5 malt-houses, 21 aërated waters and cordial works, 1 sauce- and pickle-making factory, 4 soap- and candle-works, 20 sawmills and sash-and-door factories, 4 gasworks, 18 brick, tile, and pottery manufactories, 11 iron- and brass-foundries, and 6 collieries.

Institutions.

As an indication of the progress of the district, it may be noted that there were in 1891 sixty-six public libraries, mechanics' institutes, and scientific institutions, with a membership of 3,263; and 256 churches or chapels, attended by 41,771 persons.

Educational.

Primary Schools.—The district is divided into two parts, termed North and South Canterbury, each presided over by an Educational Board. Under the control of the Boards schools have been established throughout the whole country wherever population warrants their erection.

The number of children attending the public primary schools in Canterbury, December, 1894, was—males, 13,640; females, 12,815: total, 26,455. Average daily attendance, 22,216. Number of teachers—males, 302; females, 391: total, 693: and 59 sewing-mistresses. Number of schools, 244.

The income from primary educational endowments for the year 1894 amounted to £15,310 11s. 2d.

There is a Normal School at Christchurch for the training of teachers.

Secondary Education.

For the further education of children ample provision has been made by the establishment of secondary schools. The principal schools of this class are the Boys' and Girls' High Schools at Christchurch, Rangiora, Ashburton, Timaru, Waimate, Akaroa, and Temuka. For more advanced students Canterbury College, Christchurch, is available. This institution was founded and endowed by the Provincial Government in 1873. It is presided over by a Board of Governors. In 1894 the teaching staff comprised seven professors and three lecturers, and the number of students attending lectures was 326.

It should be recorded here that the Provincial Government of Canterbury was fully alive to its duties as regards higher education. It made reserves for the purpose of endowment for the following objects: (1) College, 101,640 acres, reserved June, 1873; (2) technical science, 103,000 acres, reserved July, 1873; (3) School of Agriculture, 100,950 acres, reserved June, 1873; (4) Boys' High School, 9,220 acres, reserved at various dates; (5) Classical School, 8,953 acres, reserved at various dates. To these were subsequently added the following: (6) Girls' High School, 2,578 acres, reserved January, 1878; (7) Medical School, 5,000 acres, reserved December, 1877.

Private Schools.

There are numerous private schools, independent of the State, the chief amongst them being Christ's College, Christchurch, connected with the Church of England. The Roman Catholics support schools of their own in Christchurch, Lyttelton, Timaru, Addington, Papanui, Halswell, Ashburton, Arowhenua, and Waimate. There are besides, in Christchurch, some excellent private boarding- and day-schools for both boys and girls.

Other Institutions.

Canterbury has the advantage of possessing many flourishing public institutions. The School of Art, Christchurch, was established by the College Governors in 1882; the Art Gallery owes its origin to the Art Society, the site being the gift of the Government. The School of Agriculture, Lincoln, also founded by the College Governors, is surrounded by 660 acres of land. The commodious buildings, which cost over £20,000, provide accommodation for the Director and teaching-staff, and for forty-five students. The fees are on a low scale. The farm buildings are complete, and include a well-equipped dairy. Instruction is given in agriculture, chemistry, botany, mechanics, physics, surveying, &c. (See also special article, page 299, *ante*.)

The Public Library, Christchurch, under the control of the College Governors, contains reading-rooms, a circulating library of over 14,000 books, and a reference library of over 8,700 volumes. Numbers of magazines and newspapers are provided.

The Museum, Christchurch, is a handsome pile of stone buildings; the collections are large and varied. They are separated into two groups: (1) Those from New Zealand; (2) those from foreign countries. In the New Zealand department the skeletons of whales and moas, as well as the collections of shells (tertiary and fossils) and rocks, are specially good; and the Maori collection, exhibited in a Maori house, is also of considerable interest. In the foreign department, the geological, mineralogical, and ethnological collections are the most extensive, but there is also a good illustrative series of Egyptian and Roman antiquities, as well as of the remains of prehistoric man in Europe and America.

This institution owes its origin and success to the foresight, skill, and energy of the late Sir Julius von Haast, and to the munificence of the Provincial Government.

The philanthropic institutions embrace the Christchurch, Akaroa, Ashburton, Timaru, and Waimate Hospitals; the Sunnyside Asylum for the Insane; the Rhodes Convalescent Home; the Memorial Home for the Aged at Woolston; the City Mission and Destitute Men's Home, Christchurch; the Deaf-and-Dumb Asylum at Sumner; the Orphanage, Lyttelton; and the Industrial School at Burnham.

Towns.

Christchurch, the capital city of the Canterbury District, is situated on the plains. It is practically level, laid out in rectangular form, two miles by one mile and a quarter, and is intersected diagonally by a street. The streets are 66ft. in width. There are numerous open spaces, including the Cathedral Square in the centre, Cranmer and Latimer Squares. The Avon, a pretty stream, overhung by willows, runs through the town, presenting from all points charming vistas. The city is surprisingly English in its appearance, architecture, and surroundings. The central portion, where stands the Cathedral, Government offices, and other substantial structures, has a handsome, well-built look. Other parts contain fine public buildings, such as the Museum, Canterbury College, High Schools, &c. The whole is admirably set off by Hagley Park, 400 acres in extent, the Domain and Botanical Gardens, 79 acres, Lancaster Park, the town belts, and other public and private gardens and plantations. The suburbs can show many handsome houses and beautifully kept grounds.

The city is surrounded by the populous boroughs and districts of Sydenham, St. Albans, Linwood, Papanui, Woolston, &c. The population of the city was at the last census 16,223, in 3,318 houses; including the adjacent boroughs and other suburbs the population amounts to 47,846. Tramways connect the city with the suburbs of Addington, Sydenham, and Papanui, and with the seaside villages of New Brighton and Sumner. The city has been drained at considerable expense, the sewage being conveyed three miles and discharged on the sand wastes near the sea. A pure and copious water-supply has been provided by nature, and is obtained by artesian wells. The affairs of the municipality are controlled by the City Council, presided over by the Mayor. Christchurch is the centre of trade and commerce for the North Canterbury agricultural and pastoral country, and the head-quarters of many manufacturing industries, including carriage-, boot-, and clothing-factories, flour-mills, breweries, meat-preserving and -freezing, biscuit, planing and moulding, bicycle, and other works.

There are large and well-equipped show-grounds at Addington.

Recreation and amusement are provided for by the Theatre Royal and various public halls, the famous Riccarton racecourse, the numerous cricket and football grounds, &c., while boating men have the River Avon and the Heathcote estuary.

Christchurch is connected with the outside world by Port Lyttelton, seven miles distant. The railway-tunnel of 1¾ miles in length, through the Port Hills, is on this line. Christchurch is not only the centre of the splendid Canterbury Plains, but is also one of the chief railway centres of the colony. Addington railway-workshops are extensive and fully equipped.

Lyttelton, the chief port of the district, is situated on the northern shores of the inlet of that name, sometimes called Port Cooper. The surrounding country consists of high precipitous hills, which separate the harbour from Christchurch and the plains; but by the construction of the railway and tunnel the natural difficulties have been overcome, with the result that the whole of the imports and exports of northern and central Canterbury pass through Lyttelton. The origination and accomplishment of this great engineering work is due to the late William Sefton Moorhouse, at that time Superintendent of the Province. The natural advantages of the port have been enhanced by reclamation and harbour-works, which include two breakwaters, 2,010ft. and 1,400ft. in length respectively, extending from Officer and Naval Points, enclosing about 107 acres; long lengths of wharf accommodation, 10,041ft.; a patent slip for ships up to 400 tons; and a splendid graving dock 450ft. long, width on top and bottom 82ft. and 46ft. respectively, the entrance being 62ft. wide, well equipped with machinery and all requisites for repairs. Ships drawing up to 25ft. can berth alongside the spacious wharves and sheds. The railway, electric-light, machinery, and appliances are available throughout, which renders loading and unloading practicable both by day and by night. The town nestles on the side of the range, the streets being generally steep, flanked by solid stone buildings; and a background of green spurs and bold rocky faces gives to the whole a charming and picturesque appearance. The water-supply is obtained from artesian wells on the Christchurch side of the hills. To Christchurch there is a bridle-track over the range, and a carriage-road *viâ* Sumner. The harbour is well defended by fortifications and batteries on Ripa Island and the mainland. The population in 1891 was 4,087, with 790 houses.

Timaru, the third town in importance, is situated on the coast and railway-line between Christchurch (100 miles) and Dunedin (131 miles). It has a well-constructed artificial harbour, the port of shipment for the agricultural and pastoral districts of Geraldine, Timaru, and Waimate. The harbour is enclosed by a breakwater built of blocks of concrete; a rubble wall—the North Mole—starts from the shore a quarter of a mile away to the north, and extends easterly to a point 350ft. from the breakwater. The enclosed space is 50 acres. The town is picturesquely situated on rolling hills overlooking the sea. The streets are irregular, but the public and commercial buildings, churches, and private houses are generally well and handsomely built of stone. The chief industries are meat-freezing, saw-milling, flour-milling, &c. The town has a good high-pressure water-supply, and is connected by well-made roads with the surrounding districts, and by rail with Fairlie, the route to the Mackenzie Country and Mount Cook. The population in 1891 was 3,668, with 738 houses.

Of other towns in Canterbury the following deserve mention: Rangiora, population, 1,783, with 367 houses, twenty miles from Christchurch by northern line of railway, is situated in the centre of a fine farming country, and possesses manufactories, including seven flax-mills, flour-mill, and brewery. The town and neighbourhood are much benefited by plantations.

Kaiapoi, on the Waimakariri, population 1,371, about fourteen miles from Christchurch by the northern railway-line, lies in a rich farming country, rendered pleasing and attractive by the extent and variety of plantations and gardens. There are factories and various industries, including ham- and bacon-curing, saw-mills, brewery, and agricultural-implement works. Here also is the famed Kaiapoi Woollen-mill, which employs 600 hands when trade is brisk. The Waimakariri is navigable for small vessels to the centre of the town.

Ashburton, the newest of the towns, has a population of 1,900, with 341 houses, and is fifty-three miles from Christchurch on the southern trunk line. It is a well-built town, with extensive and beautiful recreation-grounds and gardens. It owes its existence to the settlement of the plains, the surrounding country being well adapted for farming. There are two breweries, a cordial-factory, three flour-mills, gasworks, ironworks, woollen-mill, brickworks, &c.

Geraldine, population 794, is situated on the Waihi River, four miles from Orari Railway-station, about eighty-six miles south-west from Christchurch. It is a neat and pretty town, in a first-class farming district, and has a beautiful park of native forest-trees.

Temuka, population 1,309, eighty-eight miles from Christchurch, on the southern railway-line, is a well-built town, with good agricultural land all round. It possesses three flour-mills, a butter- and cheese-factory, brewery, foundry, fellmongery and paper-mill. There is a beautiful park and domain.

Waimate, population 1,279, is situated on the Waihao Forks Railway, about four miles from Studholme Junction, some 111 miles from both Christchurch and Dunedin. This town is the centre for an extensive back-country, and a splendid agricultural area. It owes its origin to the sawmill industry of the Waimate bush. Industries: saw-milling, flour-milling, &c.

Akaroa, situated on the noble harbour of that name, was founded in 1840, in the first instance by the French. It is a quiet, picturesque little place, much patronised by Christchurch residents and others as a summer resort and watering-place. It was here that Captain Stanley hoisted the British flag on 11th August, 1840, when he took possession of the Middle Island on behalf of the Crown, forestalling the French by a few hours only.

THE OTAGO LAND DISTRICT.

By C. W. Adams, Chief Surveyor.

Boundaries and Area.

The Otago Land District lies between the 44th and 47th parallels of south latitude, and extends from 167° 20′ to 171° 10′ of east longitude. It is bounded on the north by the Canterbury Land District; on the south-east and south by the ocean; on the west and south by the Waikawa, Mokoreta, Slopedown, Waikaka, Chatton, Wendon, Waikaia, Gap, Rockyside, and Kingston Survey Districts, the western and southern shores of Lake Wakatipu, the Mid-Wakatipu, Mavora, Swinton, Eglinton, Arran, and Doon Survey Districts, and a straight line from the north-east corner of the last-mentioned district to the nearest arm of George Sound, and by George Sound to the ocean; and on the north-west by the ocean to Big Bay.

The district measures about 160 miles from Milford Sound on the west coast to Waikouaiti Bay on the east coast, and the same distance from north to south. Its area is 9,004,800 acres.

Physical Description.

The country generally is mountainous, the highest land being to the north-west, and culminating in Mount Aspiring, 9,960ft. above the level of the sea.

The west coast mountains are remarkably rugged and grand; and of the thirteen sounds that pierce this coast, three are within the limits of the Otago Land District, the remaining ten being on the west coast of the Southland District. These three are Milford Sound, Bligh Sound, and George Sound. Milford Sound, though only eight miles in length, contains some of the grandest scenery in the world; and fourteen miles inland from its head is the great Sutherland Waterfall, 1,904ft. high, possibly the highest waterfall known. Bligh Sound is smaller than Milford, and not nearly so interesting; but George Sound is larger, and very picturesque.

A rough tourist track has been opened from the head of Te Anau Lake to Milford Sound, and a practicable route has also been discovered, and a track partly formed, from the north-west arm of the middle fiord of Te Anau Lake to the head of George Sound.

For nearly one hundred miles inland from the west coast the country is very mountainous, but at a distance of sixty or seventy miles from the south-east coastline it begins to get gradually lower, taking the form of rolling hills and downs along the sea-shore.

Rivers and Lakes.

The largest rivers are the Clutha, Taieri, and Waitaki: the first-named drains Lakes Wakatipu, Wanaka, and Hawea; the last, Lakes Ohau, Pukaki, and Tekapo, in the Canterbury District. Te Anau, the largest lake in the Middle Island, lies partly in the Otago and partly in the Southland District. The dimensions of these lakes are as follows:—

Lakes.	Length in Miles.	General Breadth in Miles.	Area in Square Miles.	Height above Sea-level in Feet.
Te Anau ...	38	1 to 6	132	694
Wakatipu ...	50	1 to 3½	114	1,069
Wanaka ..	29	1 to 3	75	928
Hawea ..	19	3	48	1,062
Ohau ...	11	1 to 3	23	1,720
Pukaki ...	11	2½ to 5	31	1,588
Tekapo ...	15	1 to 3½	32½	2,325

These lakes are situated in mountainous country; they are of glacial origin, and all very deep.

The Clutha River is the largest in New Zealand, and is estimated to discharge over 1,000,000 cubic feet per minute. It has a rapid current, but is navigable for small steamers for a distance of forty miles from its mouth. The Waitaki is not a navigable river. For some seventeen miles from its mouth the Taieri River is affected by tides, which run up one branch into Waihola Lake, and up the other branch as far as Greytown.

There is a small steamer on Waihola Lake, and another on the Taieri River at Henley. During the summer season both run excursion trips to the mouth of the river when required. The distance in each case is about eight miles.

Plains.

There are some considerable areas of tolerably level land in the interior, the largest being the Maniototo Plains, the Idaburn, Manuherikia, and Upper Clutha Valleys. Their dimensions are approximately as follows: Maniototo Plains, length, twenty-eight miles; average breadth, ten miles; Idaburn Valley, twenty-five miles by four miles; Manuherikia Valley, thirty-five miles by four miles; Upper Clutha Valley, thirty-three miles by five miles.

The Taieri Plain, nearer the coast, is about the same size as the Idaburn Valley, and is very fertile. Other plains are the Waitaki in the north, the Tokomairiro, the Strath-Taieri, the Tapanui, and the fertile Inch-Clutha, lying between the two branches of the Clutha River, and consisting entirely of alluvial deposit. There is also a good deal of low country, chiefly rolling downs, on the south-west side of the Clutha near the sea.

Forests.

The forest-land lies mostly along the sea-coast, the largest area of bush being Tautuku Forest, about forty miles in length and fifteen miles in breadth. The western part of this forest is in the Southland District. The other principal forest areas are in the following localities, viz.: north of Dunedin, east of the Tapanui mountains, in the upper valley of the Waikaia River, and towards the north-west coast.

The forests of Otago contain a large variety of useful timber, both hard and soft wood; some being suitable for building purposes, while other varieties are highly ornamental, and much prized for cabinet-work.

Building Stones.

Building-stones of good quality are found in various places throughout Otago. The Port Chalmers quarries afford an inexhaustible supply of bluestone, a basaltic stone of great hardness and durability. A hard freestone of excellent quality is found at Waikawa, where there is a large hill of it close to the water's edge. Blocks of very great size can be obtained. A soft white building-stone—the well-known Oamaru limestone—is found in large quantities along the railway-line near Oamaru, from whence a good deal is exported to other parts of New Zealand, and to the neighbouring colonies. A similar kind of stone is found at Otekaike, about two miles from the railway-station, and it may be interesting to note that during the years 1891–93 about 3,000 tons of stone were sent from the Otekaike quarries to form the facings of the Melbourne Fish-market.

Coal.

No first-class coals have yet been discovered in Otago suitable for steamships making long voyages, but very excellent brown coal exists in various neighbourhoods, and is used on the railways in large quantities. There are seventy-two coal-mines at work in Otago, in twenty-two different places, furnishing very good fuel for household and domestic purposes. The output for 1894 was 185,000 tons. Beds of lignite are also found in numerous localities, chiefly round the margins of the old lake-basins, and along the courses of the older river-valleys.

Limestone.

Limestone is found in the following places: Oamaru, Otekaike, Otepopo, Waihemo, Maniototo Plains, Waikouaiti, Lower Harbour, Peninsula, Waihola, Millburn, and Wakatipu.

The Millburn Lime and Cement Company burn large quantities of lime at their Millburn works, from whence it is sent to all parts of Otago, for building purposes, gasworks, &c. It is also largely used in farming, and the productiveness of the Tokomairiro Plain has been greatly increased of late years by its application to the soil. Large cement-works belonging to the same company have been open for some years on the reclaimed land in Otago Harbour, near Dunedin. The cement manufactured at these works is considered fully equal, if not superior, to the best imported, and is largely used in building and other constructive works.

Climate.

The climate of Otago varies greatly in different neighbourhoods, and sometimes a distance of a few miles only separates districts very dissimilar in this respect. A large area in the interior of Otago has what may be called a dry climate. This area includes the Maniototo Plains, the Idaburn and Manuherikia Valleys, and extends to Lakes Wakatipu, Wanaka, Hawea, and Ohau on the west and north, and to the Waitaki River on the north-east. From Oamaru the direction would be across country to the Lammerlaw Ranges, and thence to Mount Benger and the southern end of Lake Wakatipu. This part of the country is well adapted for sheep of all kinds, especially merinos. Some of the runs in the hilly country are capable of carrying 20,000 sheep.

Fruit.

There are some fine fruit-growing districts in the valley of the Clutha, from below Roxburgh right up to Lake Wanaka. The summers are dry and warm, and the soil suitable. Apricots, peaches, &c., come to maturity fully a month before they do at Dunedin, and grapes ripen in the open air. There is a great future for this neighbourhood in the growing of those varieties of fruit which agree with and thrive in a dry climate. The grape might be cultivated either for wine-making or for the table, and some varieties could be made into good raisins. The hops grown at Alexandra are far superior to any grown in other parts of the colony, and quite equal to the best Californian. The dryness of the atmosphere is favourable for preserving all kinds of fruit, while the Otago Central Railway will bring the neighbourhood into direct communication with a market.

Crops.

Cereals of all kinds do well inland, although they sometimes suffer from want of rain. The average yield per acre of the various crops in February, 1895, was as follows: Wheat, 26 bushels; oats, 31 bushels; barley, 29 bushels; rye, 14 bushels; peas, 18 bushels; beans, 25 bushels; hay, 1·5 tons; potatoes, 4·75 tons.

West Coast.

In marked contrast to central Otago is the West Coast District, which may be described as having a wet climate. Not that the number of wet days in the year is very great, but it is subject to very heavy rains from the north-west, the fall generally exceeding 100in. per annum. But, although wet, the climate is mild, and the vegetation is consequently luxuriant. The only inhabitants of this part of the country are Mr. and Mrs. Sutherland, who keep a house of accommodation for tourists at the head of Milford Sound. There are very few visitors to the Sounds during winter, but in summer the tourist traffic is considerable. Towards the south-east and south coasts of the district the climate is moist, being somewhat similar to that of Dunedin, where the average rainfall is 35in., distributed over 163 days in the year.

Stock.

The total number of sheep in Otago Provincial District on the 1st April, 1894, was 4,429,227, of which rather more than half were merinos. On an average, about one-third of the flocks consist of breeding-ewes. The value of the Otago wool-clip is about £750,000. The shearing is mostly done by hand, but the Wolseley shearing-machines have been introduced on about ten stations, the number of machines in each woolshed varying generally from ten to fifteen, though there is one shed at Benmore, near Lake Ohau, where there are twenty-eight machines driven by a turbine.

At the time of the last census there were 50,206 horses, including 7,837 brood mares; 72 mules and asses; 152,000 cattle; 2,000 goats; 38,200 pigs; and 443,000 poultry.

The rabbit-pest is still a severe tax on the stockowners; the number of skins exported last year for the whole colony being 14,267,385, of which number Otago contributes about one-third.

Freezing Establishments.

There are two freezing establishments in Otago—namely, at Oamaru and at Burnside. They both belong to the New Zealand Refrigerating Company. At Oamaru there are two Bell-Coleman machines. The capacity of the smaller one is 60,000 cubic feet of cold air per hour; and the larger one can supply 90,000 cubic feet per hour. The smaller machine is driven by water, obtained from the Oamaru town supply, the larger by steam. Together they can freeze 800 sheep a day, and there is storage-room for 20,000 carcases. At Burnside there are two Haslam machines, both driven by steam. One can supply 40,000 cubic feet of cold air per hour, and the other 60,000. The Burnside works can freeze 500 sheep a day, and have storage-room for 14,000 carcases.

Woollen-mills.

There are four woollen-mills at work in Otago, employing some 750 hands. The amount paid in wages is about £50,000 per annum, and the machinery is 800-horse power. £67,000 worth of wool is used per annum, and the turn-out of manufactured goods exceeds £150,000 yearly. It will thus be seen that, taking each item as given above, the woollen industry in Otago is more considerable than in all the other districts of New Zealand taken together.

Clothing-factories.

In clothing-factories, also, Otago takes the lead, having five, employing 666 hands, whose wages amount to £27,000 per annum.

Flax-mills.

There are about twenty flax-mills in different parts of the district, employing nearly 400 hands, paying wages amounting to £8,000 yearly, and turning out £16,800 worth of manufactured material per annum.

Dairy-factories.

Otago takes also a good position as regards cheese- and butter-factories and creameries, whether in respect of the number of hands employed, wages paid, or the value of the annual output, which amounts to about £60,000. There are thirty-two factories at present, and new ones are being started from time to time.

Gold Production.

Otago produces about one-third of all the gold taken out in New Zealand. Last year the export was 69,113oz., valued at £283,289. This was obtained by 5,000 miners, of whom about 30 per cent. are Chinese.

Gold is found very generally distributed throughout Otago, except in the southern portion of the district. The principal localities are: Clutha Valley, Tuapeka, Shotover, Cardrona, Tinker's, St. Bathan's, Mount Ida, Nevis, Bannockburn, and Maerewhenua.

Chief Towns.

The following are the chief towns of Otago, with their population, including all having 1,000 inhabitants and upwards: Dunedin and suburbs, 46,000; Oamaru, 5,600; Port Chalmers, 2 000; Mosgiel, 1,300; Milton, 1,100; Kaitangata, 1,100; Lawrence, 1,000.

Dunedin, the capital city of Otago, is situated at the head of Otago Harbour, which is divided into two parts—the upper and lower. The lower harbour is six miles long from Taiaroa Heads to Port Chalmers. The upper harbour, from Port Chalmers to Dunedin, is seven miles in length. Dunedin and Port Chalmers are also connected by railway.

Although the hills surrounding Dunedin are rather tame in character and outline, the city itself is picturesquely situated. The business part of it is on level land near the harbour, and the residences occupy the sloping hills which rise on the west side of the city. The city proper is about two miles and a half long by seven-eighths of a mile wide, and is surrounded on the land side by what is called the Town Belt. This reserve averages one-fifth of a mile in width, and comprises 500 acres, a great part of which is virgin bush. A pretty road, called the Queen's Drive, has been laid out through the Belt from end to end, from which many fine views of the town and harbour can be obtained.

It is thirteen miles down the harbour to the Heads in a north-easterly direction, but the Ocean Beach, lying to the south-east, is only two miles from the centre of the city, and the favourite seaside resort—St. Clair—is about three miles. Trams run to both these places at short intervals. The city is also connected with the suburban boroughs, lying on the hills overlooking the town, by excellent cable-tramways. The Botanical Gardens to the north of the city are well laid out, the native bush contrasting with the cultivated parts. The Reservoir also, which is within easy walking distance, and the drive to Blueskin Bay, have many beauties.

Dunedin is well supplied with elementary schools, there being six large schools in the city proper, and seven more in the suburbs.

There is also in Dunedin a training-college for teachers. The students in training number sixteen men and thirty-two women. They devote every fifth week during the session to practice in teaching and management of classes in the ten associated schools of the city and suburbs.

The School of Art and Design is in the same building as the Normal School, and has a staff of five teachers.

The Otago Boys' High School, the largest high school in the colony, stands on a commanding plateau 300ft. above the business part of the city and the harbour. The school was opened on the 3rd August, 1863, in the building in Dowling Street now occupied as the Girls' High School. The new buildings were opened by Sir William Jervois, Governor, in February, 1885. The teaching staff, including the Rector, is ten ; the attendance is 215.

The Otago Girls' High School was opened on the 6th February, 1871, with a roll of 78 pupils, and by the end of the quarter there were 102 in attendance. The present attendance is 178, with a teaching staff of ten. Otago holds the proud distinction of having established the first Girls' High School in the Australasian Colonies. Among the earnest band of workers who laboured to establish this first High School for girls the name of Miss Dalrymple stands pre-eminent, and will ever be held in grateful remembrance by the people of Otago.

The Otago University was founded in 1869, and opened in 1871. It is well housed in a handsome pile of buildings in the domestic Gothic style. There are four separate faculties in the University—viz., arts and science, law, medicine, and mining. The School of Medicine provides the full course for a medical degree of the University of New Zealand. There is a Medical Museum in the University buildings containing anatomical, pathological, and other preparations and models. The teaching staff numbers at present twenty-three professors and lecturers. Of undergraduates keeping terms there are 211—viz., 171 men and 40 women. The University Library contains over 5,000 specially selected volumes, and is open to the public under certain conditions for purposes of reference. The Chemical and Physical Laboratories are well fitted up, and furnished with all necessary instruments and appliances. There are six scholarships tenable at the University, ranging in value from £15 to £40 per annum.

The public Museum, of which the Professor of Biology is Curator, is under the control of the University Council. It is situated in King street, about five minutes' walk from the University. There is an art gallery attached, which contains some good works of art. Up to the present time only the central portion of the original design has been erected.

The Dunedin Athenæum and Mechanics' Institute possesses a fine library of over 16,000 volumes, and a membership of over 1,000 subscribers. Besides the Circulating Library there is a Reference Library, as well as two good reading-rooms, well supplied with newspapers and magazines.

Public Buildings.

There are some fine specimens of architecture in Dunedin, the buildings for the most part having an air of permanence and solidity. Some of the churches are very handsome, and St. Joseph's Cathedral (Roman Catholic) has a particularly imposing appearance, although only about one-third of the original design has been completed. It is built of stone in the decorated Gothic style. The portion at present constructed will seat 1,000 persons, and has cost £23,000.

The First Church, in Moray Place, and Knox Church, in George street, belong to the Presbyterians, and are both handsome stone structures. The Cargill Monument, which was erected to the memory of the late Captain Cargill, the founder of the Otago settlement, stands in the Triangle, between the Customhouse and the Bank of New Zealand. It is an ornate specimen of early decorated Gothic.

Towns and Surrounding Country.

Port Chalmers (eight miles from Dunedin) situate on Otago Harbour, midway between the heads and Dunedin, has a population of over 2,000 inhabitants. It is the chief port of Otago, and possesses every accommodation for Home vessels, including dry dock, 80-ton sheerlegs, steam-hammer, and other appliances, besides several private foundries, cool-storage chamber, &c. The Port Chalmers graving dock is described in the article on page 385.

Leaving Dunedin by the northern railway, winding in and out through the hills which surround the town, and skirting the precipitous cliffs of the coast-line, the first station of importance reached is Waitati, a favourite seaside resort in Blueskin Bay; distance, seventeen miles. Fifteen miles beyond is Waikouaiti; population, 750; pleasantly situated on the Hawksbury lagoon, the centre of a flourishing farming country. The next place of note is Palmerston, forty-one miles from Dunedin, with 800 inhabitants. A branch-line leaves Palmerston and runs nine miles up Shag Valley to Dunback. Six miles further on the main line there is a branch to Shag Point, a coalfield, with two pits being actively worked.

Oamaru (seventy-eight miles) is the second town in Otago, having a population of about 6,000. It is the centre of a large farming district, and has a good harbour, formed by a concrete breakwater, for the reception of ocean-going ships. The chief exports are wool and grain. A branch-line runs from the junction near Oamaru up the Waiareka Valley to Ngapara, seventeen miles, and Tokaraki, twenty-six miles from Oamaru, and another seven miles by road brings us to Livingstone.

Starting from Oamaru, and proceeding to Central Otago, *viâ* the valley of the Waitaki River, the first part of the journey is accomplished by rail across the fertile Papakaio Plains to Awamoko (ninety-six miles), and thence following up the Waitaki River past Duntroon to Kurow (120 miles). At Kurow the traveller leaves the railway and follows the course of the Waitaki through pastoral country to Rugged Ridges Station (133 miles); a little beyond Rugged Ridges the road leaves the Waitaki River, and crossing the Ahuriri Pass (141 miles), strikes the Ahuriri River, which it follows up past Omarama Station (158 miles) to the junction of Longslip Creek; it then ascends this creek until Lindis Pass saddle is reached (172 miles), at a height of 3,185 feet. Here begins the descent to the Clutha Valley *viâ* Morven Hills Station (181 miles) and Tarras Station (200 miles). From Tarras Station the road runs through settled farming country up the Clutha River, which is crossed by means of a punt at Newcastle (219 miles), and four miles more brings the traveller to Pembroke, on the southern shore of Lake Wanaka.

From Dunedin the main trunk railway runs southward to Invercargill, a distance of 130 miles. Passing through the Caversham borough and tunnel the traveller reaches Burnside (five miles) and Abbotsford (six miles), industrial centres, with coal-mining, tanning, iron-smelting, and other works. Farther on is Wingatui, the junction of the Otago Central Railway; and ten miles from Dunedin is Mosgiel, a rising township with over 1,300 inhabitants, noted for its woollen mills. The railway-line now skirts the Taieri Plain, an alluvial flat eighteen miles long by five miles broad; the most fertile portion of Otago. A branch-line from Mosgiel junction runs to Outram (nineteen miles), on the farther side of the Taieri Plain. Passing the smaller Townships of Greytown and Henley, and Lakes Waihola and Waipori, the line strikes Milton (thirty-six miles). Milton is a town of 1,150 inhabitants, with flour-mill, dairy-factories, flax-mill, and tannery, in the middle of the Tokomairiro Plain. The next place of importance is Balclutha (fifty-three miles), on the banks of the Clutha River, with flax-mills, dairy factories, and chicory works; population about 900. Kaitangata, situated lower down the Clutha River, and connected by branch-line, has extensive coalfields, and a population of 1,150. Leaving Balclutha, the main line runs through the Clutha downs, passing the small centres of Waitepeka, Warepa, Kaihiku, and Waiwera, and reaches Clinton (seventy-three miles), on the Waiwera stream, a favourite resort of anglers. The next station of note beyond Clinton is Waipahi Junction (eighty-three miles), on the Waipahi River, likewise a favourite fishing-ground. Further on is Gore (ninety-nine miles), on the Mataura River, in the Southland district. Gore is a fast-rising township of over 1,600 inhabitants, with paper-mill, flour-mill, freezing-works, dairy factory, coal-mines, &c.

A branch-line from Waipahi follows up and crosses the Pomahaka River and connects Tapanui (ninety-six miles), Kelso (ninety-eight miles), and Heriot (102 miles).

The Otago Central Railway starts from Wingatui, crosses the Taieri Plain, and then winds round to the Taieri River, which it follows up to the present terminus at Hyde. In its course along the river it runs for some distance through a rocky gorge, but after crossing the Sutton Stream enters Strath-Taieri—a comparatively flat, open country. Near Hindon Station (twenty-five miles), in the Taieri Gorge, and Barewood (thirty-six miles), there are quartz-reefs being worked. In traversing the Strath-Taieri the line passes the Blair-Taieri Village Settlement (forty-four miles), Middlemarch, a rising township (forty-eight miles), and reaches Hyde (sixty-four miles), the present limit, although the formation is well-advanced as far as Hamilton's. When this section is complete the Maniototo Plain will be tapped, and the extension of the line to Clyde presents no engineering difficulties. Central Otago has a great future before it, as in the opinion of experts it is naturally adapted for producing fruit of all kinds in perfection.

Another means of access to Central Otago is by the Clutha Valley.

Two miles beyond Milton the Lawrence branch leaves Clarkesville Junction, runs up the Tokomairiro River and the gorge of Manuka Creek, and down to Waitahuna (fifty-three miles), and Lawrence (sixty miles), goldmining centres, with an aggregate population of 1,500. Gold was first discovered here in 1861, and the mines are still yielding freely. From Lawrence a coach runs to Beaumont (seventy-two miles), on the Clutha River. Crossing the Beaumont Bridge the road follows the west bank of the Clutha, passing numerous dredging-claims. At eighty-nine miles is Ettrick, and seven miles further on is Roxburgh—the Teviot—(ninety-six miles), a town of over 400 inhabitants. Recrossing the Clutha River by the Roxburgh Bridge, and proceeding up the east bank, the traveller reaches Alexandra South (124 miles), at the junction of the Manuherikia River with the Clutha, and Clyde—the Dunstan—(130 miles), the chief town of Vincent County. The next place of importance is Cromwell (143 miles), at the junction of the Kawarau River with the Clutha. Cromwell is a considerable town of about 500 inhabitants, and has a good bridge over the Clutha River. If the traveller wishes to pursue his journey farther he can either follow the road up the Clutha to Newcastle and Pembroke, on Lake Wanaka, or take the Kawarau Gorge road by way of the Crown Terrace to Queenstown, on Lake Wakatipu.

Queenstown, a picturesque township situated on the shores of Lake Wakatipu, has a population of about 800, and is the centre of a large gold-mining district. The chief feature of Queenstown is the grand mountain and lake scenery in the neighbourhood, which attracts large numbers of tourists every year. There are two ways of reaching Queenstown—the one by the Clutha Valley and Kawarau Gorge, as above described, and the other by rail to Kingston, at the foot of Lake Wakatipu, and thence by steamer, which runs to suit the trains.

The Tautuku bush, in the south of Otago, has only lately been opened up, but already a large number of settlers are making their homes there. Starting from Balclutha the Catlin's River branch-line runs southwards to Romahapa (sixty miles) on the crossing of the main road to Port Molyneux, thence to Glenomaru (sixty-four miles) the present limit; although the formation of another section towards Owake is nearly complete. The Catlin's–Waikawa main road is formed the whole way through, as are also numerous district roads, and the adjacent lands are being taken up as fast as they are thrown open.

Local Industries.

There is not space to give in detail particulars of the various local industries throughout Otago, but amongst others may be noticed the following: There are three bone-mills and artificial-manure factories, where substances that might otherwise go to waste, or pollute the air and water, are turned to profitable account, and made to increase the fertility of the soil. There are six lime- and cement-works, the chief of which, those at Dunedin, have already been mentioned. There are thirty-three brick-, tile-, and pottery-manufactories, the largest pottery-works being at Milton, where all kinds of useful household crockeryware are made. Seventeen agricultural-implement factories are in operation, and turn out annually a large supply. There are twelve boot- and shoe-factories; three boat-building, thirty-four coach-building, forty fellmongering, tanning, and wool-scouring establishments; sixteen aërated water- and cordial-manufactories, fifteen breweries, six coffee- and spice-works, two fruit- and jam-factories, seven confectionery works, two ink-making works, two paper-making factories, five rope- and- twine works, two soap- and candle-making establishments, four gasworks, and thirty sawmills and door- and sash-making factories. There is one wire-net-making factory, where about 350 miles of rabbit-proof and other netting is made annually. There are also twenty-seven foundries, including brass-founders and coppersmiths, beside lead-pipe manufactories, stove and range manufactories, iron-rolling works, and works for making every description of engineering and mining machinery and appliances; and lastly, there is a piano manufactory in Dunedin, which has been open for the last ten years. During that period 210 pianos have been made and about 180 sold. The types manufactured are cottage pianos and upright grands, at prices ranging from thirty to sixty guineas. The present output is from twenty-five to thirty per annum.

Railways.

The principal lines are as follows: (1.) The main trunk line from Dunedin to Christchurch, with branches from Oamaru to Hakateramea, forty-three miles; and Oamaru to Ngapara and Tokoraki, twenty-five miles; also, Palmerston to Dunback, nine miles. (2.) The main trunk line, Dunedin to Invercargill, with branches, Mosgiel to Outram, nine miles; Milton to Lawrence, twenty-four miles; Stirling to Kaitangata, five miles; Balclutha to Glenomaru, twelve miles; and Waipahi to Heriot, twenty miles. (3.) The Otago Central, from Wingatui to Hyde, fifty-six miles.

Statistical.

The total population of Otago Land District at date of last census, 5th April, 1891, was 117,638.

Area of Otago Land District: Open land below 2,000ft., 5,252 square miles; forest-land below 2,000ft., 1,919 square miles; open land above 2,000ft., 6,480 square miles; forest-land above 2,000ft., 419 square miles; area of lakes, &c., 275 square miles: total, 14,345 square miles.

The following table shows the disposition of the land in the Otago District on 31st March, 1895:—

	Holdings.	Acres.
1. Crown lands alienated, comprising freehold land and vested reserves	...	2,636,378
2. Lands held on deferred payment, including village settlements	283	71,345
3. Lands held on perpetual lease, including village settlements	623	120,127
4. Lands held on lease in perpetuity, including village-homestead allotments	388	93,235
5. Lands held under occupation-with-right-of-purchase clause	71	13,149
6. Lands held as village-homestead special settlements ...	96	1,585
7. Lands held by special-settlement associations	15	2,955
8. Lands held as small-grazing-runs	245	482,296
9. Lands held under pastoral license, not including bush ...	323	3,964,159
10. Lands open for application under pastoral licenses ...	18	191,880
11. Lands held under agricultural lease on goldfields ...	47	4,280
12. Lands held under lease and license for miscellaneous purposes, exclusive of gold-mining	261	73,630
13. Crown lands open for selection	...	120,302
14. Crown lands being prepared for selection	...	50,846
15. Lands held by aboriginal natives	...	16,141
16. Tautuku Forest, unsurveyed	...	85,500
17. Balance of Crown lands, including mining reserves, public reserves not vested, bush-lands, roads, barren country, &c.	...	1,076,992
18. Lakes, and Clutha and Taieri Rivers	...	176,000
Total area of district (14,345 square miles),		9,180,800

Item No. 1 includes 340,517 acres of vested reserves, of which about 26,470 acres have been sold, leaving a balance of 314,047 acres, a portion of which will probably be open for sale at a future date.

Tenants of lands included in 2 and 5 have the right of acquiring the freehold, as have tenants of 3 up to twelve years from the date of issue of the lease, and of 11 in the case of leases issued prior to the Act of 1891. There is no right of acquiring the freehold for tenants of lands included in 4, 6, 7, 8, 9, and 12.

The Crown lands proper are (13) open for selection (see Crown Lands Guide), 120,302 acres; and (14) being prepared for selection, 50,846 acres.

Total area under cultivation on 31st March, 1895: Land broken up but not planted, 35,828 acres; land under crop, 257,925 acres; land broken up and grassed, 765,459 acres; land grass sown without being previously broken, 171,869 acres; land in garden, 1,540 acres; land in orchard, 1,440 acres; land in plantation, 2,466 acres; area of boroughs (more or less cultivated), 27,202 acres: total, 1,090,320 acres (1,704 square miles).

THE SOUTHLAND LAND DISTRICT.

By G. W. Williams, Chief Surveyor.

Physical Features.

The Southland District, comprising the Counties of Southland, Wallace, Fiord, and Stewart Island, bounded on the north and east by the Otago District, and on the south and west by the Tasman Sea, may be roughly said to lie between south latitudes 45° and 47° and east longitudes 166° 15′ and 169° 15′. For administrative purposes, however, the Snares, Auckland, Enderby, Campbell, Antipodes, Bounty, and all other islands within the limits of the colony south of the 47° parallel of south latitude are included in it.

Area, Nature, and Disposition of Lands.

The total area of the district, including Stewart Island, but exclusive of Solander and Ruapuke and the other small islands enumerated above, is 6,966,592 acres, of which 500,000 are covered with bush. The bulk of the bush-land lies between the lakes and the south and west coasts, in the neighbourhood of Forest Hill, Hokonui, Waikawa, &c. The timbers of commercial value are totara, rimu, miro, matai, rata, and kamahi, in mixed bushes; but *Fagus fusca* and other birches predominate on the high lands between the lakes and the fiords on the west coast.

The open land in its natural state carries tussock and snow-grass, fern, flax, and manuka, &c., and there is a very considerable area of marsh-land, interspersed here and there with peat bogs.

The disposition of the land is as follows:—

	Acres.
Crown lands alienated to date	1,403,471
Lands held on deferred payment	45,465
Lands held on perpetual lease	46,779
Lands held on lease in perpetuity	65,453
Lands held in occupation with right of purchase	24,322
Village-homestead special settlements	641
Small grazing-runs	61,426
Pastoral runs	1,304,730
Endowments and miscellaneous purposes	589,310
Open for selection	254,081
Under preparation for settlement	43,421
Pastoral runs open for lease	760,000
Held by aboriginal natives	11,890
Lands of small value not open for sale	552,053
Barren mountain-tops, &c.	1,803,550
Total area	6,966,592

The most striking feature of this district is the number of well-defined rivers and valleys, the latter often widening out to such an extent as to form very extensive plains. Commencing with the eastern side, the Mataura, Oreti (or New River), Aparima (or Jacob's River), and Waiau are the most prominent illustrations of this; but these rivers by no means exhaust the list, as they all have numerous tributaries, which exhibit the same features on a smaller scale.

Speaking generally, the watersheds of these rivers do not attain any great height until followed far inland, and near the great lakes to be presently noticed. From what has been said above it follows that the extensive plains and valleys referred to are of alluvial formation, in many places of very rich and fertile quality, and capable of raising crops of every known product, subject, of course, to climatic limitations. Generally these plains and valleys rise from the river-levels in a very gradual slope, sometimes into a series of terraces from 10ft. to 50ft. in height, and sometimes into undulating hills, intersected at frequent intervals by lateral gullies, affording natural drainage and an abundant supply of water.

These hills are covered with an indigenous growth, consisting of tussock and other grasses, fern, flax, &c., and even in their native state afford excellent grazing for sheep.

Near the large lakes, such as Wakatipu, Te Anau, Manapouri, Hauroto, and others, and between these and the West Coast, the country becomes very high, often reaching 5,000ft. and 6,000ft. above sea-level, with very steep and rugged spurs and ravines, these in most cases being covered with a dense growth of timber, principally of the birch or beech tribe, for two-thirds of their height: the tops, however, often carry tussock and other herbage, affording admirable pasture for sheep in summer; but stock have to be removed from April to October, during which period this country is generally covered with snow.

Southland does not contain so much forest as most of the North Island districts, nevertheless there is a very considerable quantity in the eastern, southern, and western parts, and a large export trade is done in the different kinds of pines and other timbers used for building, engineering, and furniture purposes, &c.

From what has been said of the river systems it will be evident that the country is well supplied with water, although none of the rivers can be used for purposes of internal communication; but the plains are traversed by railways for considerable distances from the principal towns, and where the railways end communication is continued by good roads, so that there is probably no part of the colony so well off for means of transit.

Agriculture.

Having already touched on the character of the soil, it only remains to say that the plains, terraces, and lower hills are well adapted for raising wheat, oats, and other cereals, turnips, mangolds, beets, and the various other crops common to temperate climates. Wheat is not so widely grown as it might be, for the reason, probably, that the pastoral branches of farming receive more attention than the agricultural, and wheat is not required for these; whereas oats are largely grown to feed sheep in the form of chaff; turnips also are much cultivated for winter food. Where wheat is grown the yields are very satisfactory, ranging from 40 to 60 bushels per acre, while oats frequently give 80 bushels.

Dairy-farming, &c.

Dairy-farming is becoming a very important industry, and is rapidly expanding under the impetus it has received through improved appliances and the favourable state of the Home markets. There are a number of cheese- and butter-factories, and one for preserving milk on the Swiss system. One firm makes Stilton cheese, which is considered to be equal to cheese of the same kind in England.

Sheep-farming.

By far the most important industries are those connected with the raising and export of mutton and wool. Some years ago sheep-farming was much hindered by the inroads of rabbits; but owing to the repressive measures adopted there has been a marked abatement of the pest, even on high back-country, and thus it has come to pass that country which a few years ago was absolutely denuded of vegetation now shows unmistakable signs of recovery. The hill-country, although it does not carry a large proportion of stock to area, is eminently healthy. The average carrying-capacity over the whole district would probably be under one sheep to the acre. Until within the last few years most of the runs were stocked with merinos, but owing to the decline in price of merino wool, and to the carcase being unacceptable to the European market, these sheep have, generally speaking, been replaced by Leicesters, Lincolns, Romney Marsh, Cheviot, and crossbreds of various kinds, better suited to the existing conditions. Large establishments for slaughtering and freezing sheep are at work. The latest of these, erected near the Bluff Harbour, is considered to be the most complete in the colony, being provided with all possible labour-saving machinery and appliances for working up the by-products into articles of commerce.

Coal and Gold.

There are extensive seams of coal and lignite distributed over the district, and in many places the annual output is considerable. Peat is also found in some up-country neighbourhoods, and is used for fuel where wood and coal are scarce. Gold is found all over the district, and a large number of persons are engaged in obtaining it either by sluicing or dredging. A considerable amount of capital has been invested in beach-dredges worked by steam. Not long ago gold-bearing reefs, reported to be of great richness, were discovered at Wilson's River, near Preservation Inlet.

Fish.

Salt-water fish abound in great quantities in the waters surrounding Stewart Island, and oysters are found on banks between that island and the Bluff. All the large rivers, and many of the tributaries, are well stocked with trout, and one river --the Aparima—had salmon-spawn put into it some years ago.

Fruit.

The small English fruits, such as gooseberries, currants, raspberries, strawberries, &c., grow in great profusion, as do also apples. Stone-fruits are not so common, although peaches, nectarines, apricots, &c., do well when trained against nursery-walls in favourable aspects.

Climate.

The climate is bracing in winter, and warm and genial in spring and summer. The old residents state that there has been a marked decrease in the rainfall within the last decade. No regular observations have been recorded for the last few years, but it is believed that the average is about 30in. a year. It may, however, be observed that more rain falls near the coast than inland, and also that the rainfall is more evenly distributed throughout the year than is the case in the northern part of the colony. The temperature varies from 40° in winter to 70° in summer.

Towns.

Invercargill, the chief town, was from the first well laid out with wide streets, and liberal reserves in the town belts for recreation purposes. The Corporation exercises a paternal care in providing water, gas, and in disposing of sewage, &c., for the citizens; and the streets are well lighted, paved, and maintained. Artesian water is pumped to the top of a handsome brick tower—which, by the way, is a very conspicuous landmark—and stored there in a tank, from which most of the houses within the town boundaries are supplied. The population, including suburbs, is nearly 10,000. All religious denominations are represented. There are rope-and-twine, carriage- and implement-factories, flour- and saw-mills, fellmongeries, brick- and pottery-works, iron-foundries, and various other industries. Exceptionally good beer is brewed here, and there are three first-class hotels. The Government Buildings, lately enlarged, are on a scale not often seen in a town of the same size. A clock and chimes of New Zealand make have been placed in the central tower. Although the Bluff is the principal port, Invercargill is provided with a second harbour for smaller vessels, in the New River Estuary, where there is a jetty with appliances for handling and receiving goods within the town boundaries.

The Bluff Harbour, which is connected by rail with Invercargill, does a very large shipping business, and derives additional importance from being the first and last port of call for steamers trading with Victoria and Tasmania.

Next in size to Invercargill is the Town of Gore, situated on the Mataura River, and at the junction of the trunk railway with the Waimea Plains Branch. Owing to this fact, and to the goodness of the land in the neighbourhood, Gore is rapidly growing in size and importance.

Riverton is a pretty little town, about twenty-five miles from Invercargill, with which it is connected by rail, and is situated on the estuary of Aparima or Jacob's River. This is the oldest settlement in Southland, and was a great resort for whalers in former years. The harbour is available for coasting-vessels, but the principal carrying-trade is done by rail. There are several sawmills in the neighbourhood

The Town of Winton is on the Invercargill–Kingston Railway, about twenty miles distant from the latter, and is the centre for a good farming, sawmilling, and coal-mining district.

Lumsden is the junction of the Kingston and Waimea Plains lines. Coaches starting from this place take passengers and mails to the Lake country.

East of Invercargill is Fortrose, on the estuary of Mataura River, which can be entered by coasting-steamers. This place is surrounded by an exceptionally fertile agricultural and pastoral country.

Eastward of Fortrose and about midway between that place and Catlin's River is Waikawa, a newly-settled township with a first-class harbour for coasters, and a very large area of Crown land around it available for settlement. Steamers trading with Dunedin and Invercargill call here and at Fortrose at regular intervals.

Crown Lands for Disposal.

There remains for disposal a very large area of Crown land, probably more than 500,000 acres, but this can be estimated only roughly, because much of the district west of Waiau River is practically unexplored. It is true that this is chiefly forest-land, but it is beginning to be recognised here, as in the North Island, than when such land is once cleared and laid down with grass it is distinctly superior to most open country for grazing purposes; and grazing is and will long remain the principal industry of the colony. The land referred to lies around Waikawa Harbour, along the Waikawa–Catlin's Road, between the Jacob's and Waiau Rivers, and to the west of the Waiau. Stewart Island also contains a wide extent of Crown lands, mostly forest-clad. There are also considerable areas of open hilly country carrying natural grasses still in the hands of Government. These are to be found in various parts of the district, but are being rapidly taken up.

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By Authority: SAMUEL COSTALL, Government Printer, Wellington.—1895.

Colonies.	Population. (1)				
	On 31st December.			Mean for	
	Males.	Females.	Total.	Males.	Femal
Queensland ..	250,834	194,321	445,155	247,314	191,
New South Wales ..	672,950	578,500	1,251,450	665,970	571,
Victoria	607,259	571,844	1,179,103	606,160	568,
South Australia(2) ..	179,442	168,278	347,720	177,286	166,
Western Australia ..	55,072	27,000	82,072	51,545	25,
Tasmania	83,266	74,190	157,456	82,623	73,
New Zealand ..	363,763	322,365	686,128	360,699	318,

Colonies.	Shipping.				
	Inwards.				
	Sailing Vessels.		Steam Vessels.		Sailing V
	Number.	Tonnage.	Number.	Tonnage.	Number.
Queensland ..	(8)623 vessels, 459,647 tons				(8)6
New South Wales ..	699	672,258	2,573	2,187,710	710
Victoria	293	213,389	1,790	1,950,327	278
South Australia ..	250	229,048	863	1,146,204	252
Western Australia	62	39,790	310	635,985	61
Tasmania	150	20,085	532	418,965	163
New Zealand ..	279	133,836	330	497,264	285

Colonies	Postal.			
	Number of Post-offices.	Number passing through Office onc		
		Letters and Post-cards.	Newspapers.	Books an Packets.
Queensland ..	996	17,794,092	10,906,618	4,387,
New South Wales ..	1,895	68,956,800	41,667,300	13,573,
Victoria	1,719	*	*	*
South Australia ..	648	16,445,556	8,016,400	1
Western Australia	206	11,368,906	9,375,589	3
Tasmania	327	5,723,867	4,447,619	1,286,
New Zealand ..	1,353	28,896,820	12,333,708	[illegible]

	11,723	2,298	32,589	17,494	1,426	51,509
	1,613	3,544	21,398	9,562	8,093	39,053
,099	405	2,445	13,949	30,815‡	9,782	54,546
8,899	155	3,845	12,899	..	200,000	212,899
21,319	615	4,711	26,645	35,673‡	190,000	252,318
36,472	835	5,958	43,265	37,752	153,038	234,055
38,366	3,337	5,779	47,482	36,000	155,653	239,135
41,931	3,600	4,877	50,408	20,000	151,455	221,863
43,612	8,559	7,127	52,298	41,730	131,100	232,128
49,208	12,261	5,580	67,049	20,000	110,600	197,649
50,527	14,281	10,956	75,764	10,000	91,600	177,364

The data are drawn from several official sources, and the information is only approximate. ‡ Raised by

, and live stock for the year 1851:—
Wesleyans, 2,529; Primitive Methodists, 226; Independents, 333; Baptists, 400; Unitarians, 74; Lutherans, 186;
; refused to state, 496.

); potatoes, 2,256; grass, 15,589; gardens or orchard, 1,188; other crops, 679: total under crop, 29,140. Acres

ts, 12,121; pigs, 16,214.

n New Zealand, which is stated by Sir George Grey to have been supplied from official sources when he was

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